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Railway Age

DAILY EDITION

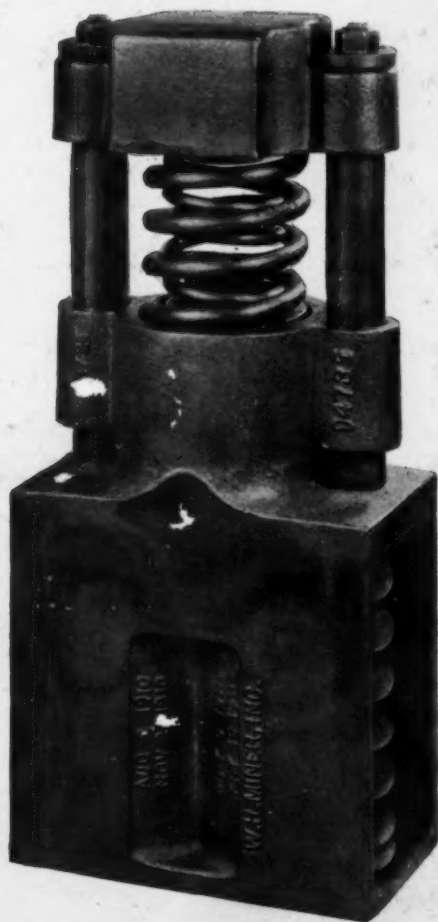
FIRST HALF OF 1924, No. 34 NEW YORK—TUESDAY, JUNE 17, 1924—ATLANTIC CITY

SIXTY-NINTH YEAR

Published weekly by Simmons-Boardman Pub. Co., 30 Church St., New York, N. Y. Subscription Price, U. S., Canada and Mexico, \$6.00; foreign countries (excepting daily editions), \$8.00, and \$10.00 a year, including all dailies; single copies, 25 cents. Entered as second-class matter, January 30, 1918, at the post office at New York, N. Y., under the act of March 3, 1879.

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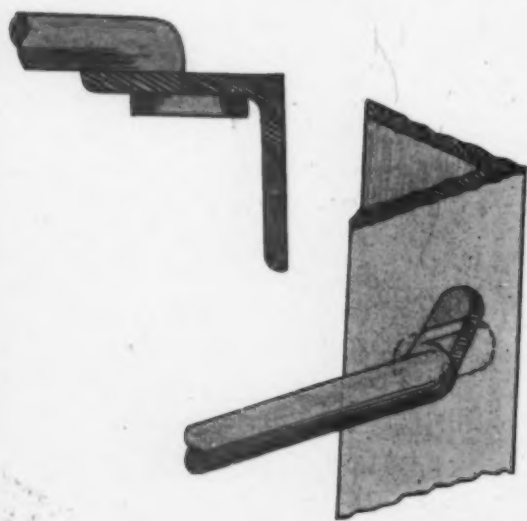
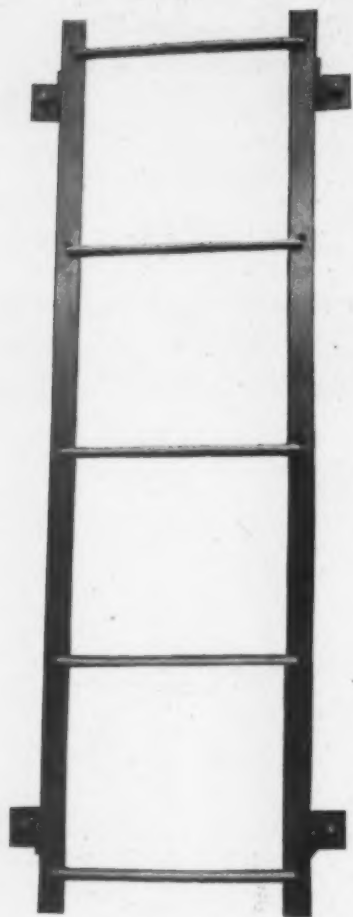
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1924

Railway Age

DAILY EDITION

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VOLUME 76

JUNE 17, 1924

NUMBER 34

PUBLISHED EVERY SATURDAY AND DAILY EIGHT TIMES IN JUNE BY THE
SIMMONS-BOARDMAN PUBLISHING COMPANY,
30 CHURCH STREET, NEW YORK

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Entered at the Post Office at New York, N. Y., as mail matter of the second class.

Subscriptions including 52 regular weekly issues and special daily editions published from time to time in New York, or in places other than New York, payable in advance and postage free; United States, Mexico and Canada, \$6.00. Foreign countries, including daily editions published in March and June, \$10. Foreign countries, not including daily editions, \$8.00. Foreign subscriptions may be paid through our London office in £. s. d. Single copies, 25 cents each.

The Railway Age is a member of the Associated Business Papers (A. B. P.) and of the Audit Bureau of Circulations (A. B. C.)

The Mechanical Division and its predecessors, the American Railway Master Mechanics' Association and the Master Car Builders' Association, do not

Organizing a Committee for Work

need to apologize for the standard of most of the committee work. The proceedings contain not a few reports of exceptionally high standard. The work of the mechanical department, however, is becoming more and more complicated, and this is necessarily placing a larger responsibility and burden on the committees of the Mechanical Division. It may not be amiss to survey the work of other technical associations in the railway field to see what, if anything, can be learned from their practices. The American Railway Engineering Association is noted for the thoroughness with which its committees discharge their duties and for the standard of its committee work. How are its committees organized? They are large, but the work is sub-divided and distributed, each group having a sub-chairman. It is not unusual to have half a dozen sub-chairmen on an important committee.

Such a committee organization requires, in the first place, a critical survey of the subject as a whole, and its logical subdivision into several parts. The sub-committees do the greater part of the detail work and the general committee co-ordinates the efforts of its several subdivisions. When the report is finally presented to the convention, the chairman of the committee usually calls on the sub-chairmen to assist him in outlining the various phases of the report. When a new chairman is appointed he is selected from the sub-chairmen, the step up being regarded more or less as a promotion. As a matter of fact, success as a committee chairman is regarded as a qualification for election to office, so that there is a more or less distinct line of advancement from the time a man is selected to serve on a committee, and on up through the grades of sub-chairman, chairman and officer. It is probable that this arrangement has a very great and direct effect upon the standard of committee performance.

One of the most important points to watch in organizing the stores department on a minimum cost basis is to divide

The Proper Size of Storehouse Gangs

the working force into gangs of such size that the men in each gang can work together to the best advantage. This is not so easy as might appear on the surface, owing to the varied character of storehouse work in many of its details. Sometimes the material to be handled is heavy and sometimes light. Sometimes the carry distance is long and sometimes short. A gang of men organized to work efficiently under one set of these conditions will not and probably can not work under another set of conditions with an equal effectiveness. To illustrate, suppose a box car is received containing castings, each one of which can be handled comfortably by one man. These castings are to be moved to some point on the storage platform 30 feet from the car. Perhaps a gang of six men is best for this job, with one man unloading the car, one piling on the storage platform and four men carrying or trucking the castings. Assume that the next day another car comes in with castings weighing twice as much as those in the first car, the necessary trucking distance remaining the same. In this case two men must be employed in the car unloading and two on the platform piling, leaving only two men to truck the castings. Obviously if the first gang was of the proper size for most effective working it will be seriously unbalanced when unloading the second car. The truckers will be working to full capacity, whereas the men in the car and those piling the castings on the platform will be working to only approximately one-half capacity. This illustration is one of many which might be cited to show the need of a constant study of storehouse operation to insure that gangs of the proper size are employed for handling each phase of the work.

The fact that two-train control devices are being exhibited at the convention this year—the first time such

Train Control and the Mechanical Officer

equipment has ever been shown before a group composed so largely of mechanical department officers—suggests a fact that is only beginning to be recognized. That is that no officer on the railroad has a deeper interest in the final selection of the type of control to be adopted by his railroad than the head of the mechanical department. A large part of the control equipment is located on the locomotive, and the mechanical officer will be held largely responsible for its correct functioning, and must see that it is properly installed and maintained. One of the most important

features of most equipments is the method of controlling the air brake. Here the judgment of the mechanical officer is especially needed in the final selection of type and he should miss no opportunity to inform himself thoroughly with respect to all types of equipment on the market.

President Baldwin, of the Missouri Pacific, delivered his address before the Mechanical Division yesterday morning

One Who Speaks With Authority

to a crowd that occupied not only all the chairs but also all the standing room in the hall. The convention visitors not only wanted to hear the address, but to see the man who was to make it, because Mr. Baldwin is today one of the most-talked-about railway executives in the country. He has been president of the Missouri Pacific only a few months, but in this short time has secured a marked increase in its traffic and effected a remarkable increase in the efficiency of its operation and service. The financial result has been that the net operating income of the road increased from \$1,921,698 in the first four months of 1923 to \$4,210,378 in the first four months of 1924, or by almost 120 per cent. The man who has made such a record as he has in such a short time certainly can speak with authority on any phase of the subject of increasing railway efficiency.

One of the most difficult obstacles that has had to be met in the preparation of the standard box car designs

Inside Width of Standard Box Cars

and one that has caused more misunderstanding than anything else, has been the standard inside width—six feet, eight inches—adopted in 1920. To retain this dimension, and at the same time design a standard roof for single and double sheathed cars with steel or wood outside sheets was an impossibility. A most happy outcome of the whole matter has apparently been reached by making this dimension a minimum, thus permitting a sufficient increase in the inside width to cover variations necessitated by different types. The higher railroad officers have evidently considered that the traffic objections were unimportant. For the first time the problem has apparently been approached from an engineering viewpoint and solved on this basis.

After many vicissitudes the standard box car project of the American Railway Association has been completed so far as the responsibility of the

The Standard Box Cars

Mechanical Division is concerned. The designs have actually been applied by the Pennsylvania in orders for 12,000 cars of three types. The first of these cars, which are being exhibited by the Pennsylvania during the conventions, indicate clearly the advantages to be obtained by the standard roof and end dimensions, which provide for a single roof and a single end for both the double and single sheath types. These designs have been the object of strong opposition. This, to a large extent, has probably been due to a misapprehension as to the real effect of standardization as the Car Construction Committee has worked it out. It has frequently been stated that standardization marks the end of progress. Complete standardization, no doubt, would do so. A thorough examination of the proposed standard design however, makes it evident that little has been incorporated in the fixed design which has not become fairly well crystallized in the opinion of a large majority of railway officers, and is

not likely to be the object of any marked improvement or innovation. Wide latitude has been left for future progress on all details of car design concerning which differences of opinion indicate an opportunity for future competition in development. A clear understanding of this fact is already tending to overcome the opposition to the standard designs, and will continue to do so. Their use ultimately will bring about a marked relief from some of the difficulties now encountered in effectively maintaining box car equipment.

With less than one-third of the time of locomotives spent in revenue service, it follows that the balance of

McMenamy Com- ments on Yards and Terminals

the time must necessarily be passed in the yards and terminals. It is here that the opportunities for time-saving are greatest, and doubtless the locomotive utilization committee recently appointed by the Board of Directors of the American Railway Association will early direct its attention to yards and engine terminals in an attempt to discover where locomotives lost most time and how this loss can be reduced to a minimum. There is a tendency to underestimate, if not entirely to disregard, the cost of locomotives standing idle for whatever cause. In his address yesterday morning Commissioner McManamy said that one idle locomotive a day costs the railroads as much as the revenue earned hauling one ton of freight 1,200 miles. He also made some extremely pertinent remarks regarding locomotive serviceability as affected by yard and engine terminal conditions as follows: "The loss on unserviceable locomotives, however, is a relatively small item in comparison with the waste of time by locomotives at terminals. The average locomotive performs about six hours' service out of each twenty-four. This is partly due to lack of terminal facilities, but particularly, also, to methods and organization at terminals. Careful investigations have repeatedly shown an average loss of from three to five hours getting locomotives to and from trains. A similar loss getting them across the cinder pit leaves a relatively small percentage of time available to make necessary repairs. Surely it should not be too much to expect that a locomotive would actually earn money fifty per cent. of its time."

The discussion of the report on the Book of Rules before the meeting of Division VI yesterday, brought out some

Cutting Corners in Storehouse Costs

of the economies which can be effected in comparative minor operations in storehouse procedure. Many roads are utilizing laborers or helpers for the operation of "shop mules," tractors and other similar equipment, feeling that the skill required is not sufficient to justify the use of higher grade men. It was pointed out that such was not the case and that the ultimate efficiency of the work depends very greatly upon the skill and mental caliber of the men assigned to the operation of "shop mules" or tractors. This is probably true, for modern general storehouses and shop layouts present more or less difficulties to efficient tractor operation in the hands of any but experienced men. This in itself would probably justify the use of better qualified and better trained men, since the opportunities for delay are numerous. There is also the factor of added efficiency attendant upon the knowledge of the operator as to the location of all the various items in stock or to be delivered. Thus it is possible, through the use of better operators, to expedite the delivery or handling of

material and thus utilize the equipment to greater advantage with a lessened unit cost for handling. While a minor item in storehouse operation, it nevertheless offers many interesting possibilities for economies.

Commissioner McManamy's Address

COMMISSIONER McMANAMY, of the Interstate Commerce Commission, deserves the thanks of both the railways and the public for participating in the activities of the convention and for delivering the address he made yesterday. The railways are subject to public regulation. It is therefore desirable that every feature of the work of their officers should be known to the public. The Interstate Commerce Commission, on behalf of the public, performs the function of regulation, and the more closely those connected with the commission keep in touch with what is being done in the railroad business the better it will be for all concerned.

Commissioner McManamy in his address yesterday emphasized the desirability of maintenance of equipment work being carried on more uniformly. It is true that in the past it has been the practice sharply to reduce maintenance work and the number of men employed when traffic and earnings have declined and then sharply to increase maintenance work and the number of men employed when traffic and earnings have increased. The fluctuations in the number of employees that have resulted have been excessive. They have been harmful to the employees and unquestionably in the long run have made the cost of maintenance greater than it would have been if the work had been done more uniformly from season to season and year to year and equipment had always been kept in good condition.

The fact should not, however, be overlooked that the control of this matter is not entirely in the hands of railway officers. Suppose the policy should be adopted in periods of depressed business of doing enough work on equipment to keep it in good condition. The result necessarily would be to keep operating expenses higher and net operating income lower in such a period than they would be if maintenance expenditures were drastically reduced. Suppose, further, that when traffic and earnings became large no substantial increase should be made in maintenance expenditures. The result necessarily would be a relatively very large increase in net operating income. Under this policy net operating income in a year of poor business might decline to say, 3 per cent., upon the valuation of railways and increase in a year of good business to say, 9 per cent. The average would be only 6 per cent. When the return earned advanced to 9 per cent. there would be a clamor from certain quarters to the effect that the railways were earning too much. Would the Interstate Commerce Commission, in the face of this clamor, maintain the rates? If it would not, the new policy would be a complete failure.

Economic conditions and regulation have forced the managements of the railways in the past to drastically reduce maintenance expenditures in bad years and to correspondingly increase them in good years. It is not a good policy from the standpoint of the railways, the employees or the public, but to a very large extent it will have to be continued if the public and the regulating authorities will not let the railways earn enough in good years to enable them to keep themselves in good condition in bad years.

While we agree with most of what Commissioner

McManamy said in his able address, there is one part of it from the implications of which we respectfully dissent. This part of it was summed up in the following sentences: "While there was a tremendous increase (in 1923) in cars loaded over 1918 there was but a 2 per cent. increase in revenue ton miles, and to accomplish this we have 9 per cent. increase in tractive power, 32.9 per cent. increase in maintenance expenditure and 65 per cent. increase in capital expenditures. When the capital expenditures and the operating expenses increase in greater ratio than the increase in revenue ton miles or increase in revenue, we are headed towards either increased rates or red figures in the ledger."

Commissioner McManamy's comparisons related to the years 1918 and 1923. First, the fact is that between these years the total revenue of the railways increased 34 per cent., while their operating expenses increased only 23 per cent. The increase in total revenues was \$500,000,000 greater than the increase in expenses. Secondly, it is true that maintenance of equipment expenses in 1923 were almost 33 per cent. greater than in 1918, but it will be noted that even this increase was slightly less in proportion than the increase in total revenues. Furthermore, Commissioner McManamy did not allude to the fact that the increase in maintenance of equipment expenses in 1923 was very largely due to the effects of the shop employees' strike and that a substantial part of it has already been wiped out. Although the effects of the shop employees' strike are still felt, maintenance of equipment expenses are now less than they were at the termination of government control. In the last six months of Government control maintenance of equipment expenses averaged \$117,600.00. In January and February, 1920, the last two months of government control, they were \$236,550.00. In January and February, 1924, they were \$217,300.00. Thus far this year they have averaged over \$10,000,000 a month less than in 1923. It might be added that in the last seven months of the year 1918, which was the first year of government operation, maintenance of equipment expenses averaged \$107,600,000 a month, while in the first three months of 1924 they averaged \$110,000,000 a month, or only 2.2 per cent. more, instead of 32.9 per cent. more. We especially call attention to this fact because Mr. McManamy's statement that maintenance of equipment expenses were 32.9 per cent. higher in 1923 than in 1918 might conceivably be used as an argument in favor of government control. The fact is, that maintenance of equipment expenses are hardly any higher now in proportion to the traffic being handled than they were in the second half of 1918 under government control, although the average wage per hour being paid to shop employees is substantially higher.

With respect to capital expenditures, we also dissent from Commissioner McManamy's statement that "increased capital expenditures require increased revenues." A larger amount of revenues must be used to pay a return upon capital investment, but in many cases the investment of capital causes reductions of operating expenses exceeding the return that must be paid upon the additional capital; and then the investment of the capital reduces the total revenues that the railways must have.

The large investment of capital made by the railways in 1923 was necessary to enable them to handle the growing traffic of the country satisfactorily and to handle it with reasonable economy. It is actually having that effect. The great regulating body of which Mr. McManamy is a member cannot better serve the public than by letting the railways earn a net return sufficient to enable them to raise the new capital required to handle increased business and to operate economically.

Today's Program

BOTH THE Purchases and Stores and the Mechanical divisions will hold meetings today.

Purchases and Stores Division

The meeting of this Division will be held in the Vernon Room of the Haddon Hall hotel. The program is as follows:

Presentation and Discussion of Reports on:

9:30 a.m. Special subject, "Placing of Purchase Orders."

9:30 a.m. Subject 5, Forest Products (Illustrated by stereopticon views).

10:15 a.m. Special subject, "Economies to Be Effected in Receiving, Handling, Reclaiming and Distribution of Forest Products," by H. R. Conoon, assistant forester, Pennsylvania Railroad System.

10:30 a.m. Subject 8, Supply Train Operation and Line Delivery of Materials (Illustrated by motion pictures).

11:30 a.m. Special subject, "Distribution of Unclaimed Freight," by R. T. Stevens, freight sales agent, Baltimore & Ohio.

12:00 m. Subject 15, Stores Delivery of Material to Users at Shops (Illustrated by motion pictures).

1:00 p.m. Special subject, "Duties and Opportunities of a Traveling Storekeeper," by L. T. Hoffman, traveling storekeeper, Union Pacific.

Mechanical Division

The meetings of the Mechanical Division will be held in the Convention Hall on the Million Dollar Pier. The program follows:

Discussion of Reports on:

Prices for Labor and Material.

Arbitration.

Tank Cars.

Loading Rules.

Safety Appliances.

Couplers and Draft Gears.

Entertainment

10:30 a.m. Orchestral Concert, Entrance Hall, Million Dollar Pier.

3:30 p.m. Orchestral Concert, Impromptu Dancing, Entrance Hall, Million Dollar Pier.

4:30 p.m. Tea will be served in Entrance Hall.

9:30 p.m. Grand Ball, Ball Room, Million Dollar Pier.

Government Men Welcomed

AMOTION WAS passed at the Monday session of Division V, Mechanical, extending the privileges of the floor to W. P. Borland, director of the Bureau of Safety of the Interstate Commerce Commission, and to W. J. Patterson, the assistant director.

Lost and Found

LOST—Gold signet ring with bloodstone, in men's wash room. Finder please return to H. B. Firmin, Putnam Machine Tool Company, Spaces 66-68, Machinery Hall.

Lost—Watch charm bearing initials H. S. L., belonging to H. S. Lacy, purchasing agent of the Jacksonville Terminal Company. May be left at the *Daily Railway Age* booth.

Lost—Round platinum pin with sapphire in center. Return to Miss Sarah F. Wells, Shelburne Hotel.

Found—In the *Daily Railway Age* office, gold-bowed,

shell-rimmed eye-glasses. If the owner is unable to read this notice without them, will some friend call his attention to it? Thank you.

Central of New Jersey Sends Locomotive to Track Exhibit

ANNOUNCEMENT WAS made during yesterday's session of the Mechanical Division that the Central Railroad of New Jersey's new type suburban locomotive, referred to in the discussion last Wednesday, is now located on the Mississippi avenue track at the end of the other exhibits and will be there through today.

Welding Men Will

Meet Today

A MEETING of those who are interested in welding will be held at 3:00 p. m. today in the Greek Temple on the pier, under the auspices of the American Welding Society. The meeting will be short and the activities of the Welding Society will be outlined. It is hoped that ways and means may be suggested for showing how the society can be of service to the Mechanical Division. Speakers will include railroad users of welding apparatus, manufacturers of equipment and makers of welded products.

Yesterday's Entertainment

THE ENTERTAINMENT features of Monday comprised the usual orchestra concert at 10:30 a. m. in the entrance hall of the pier, concert and impromptu dancing at 3:30 p. m. and tea at 4:30 p. m. In the evening the usual informal dance was varied by special features introduced by the sub-committee in charge—J. W. Fogg, Chairman, assisted by C. L. Brown, Stanley L. Bateman, Arthur G. Johnson, C. R. Naylor, H. A. Yarney and J. H. Van Moss.

The special features will be presented by "Musical Hodges" and a team of roller skaters.

Enrollment Today

THE ENROLLMENT booth will be open today from 9 a. m. to 12 noon, and from 2 p. m. to 6 p. m.

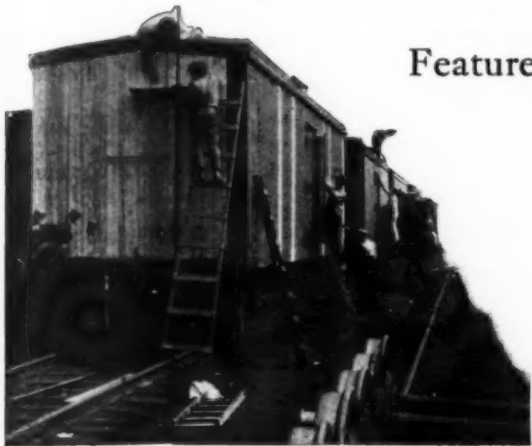
R. S. M. A. Election

—A Correction

IN THE report of the election of the officers of the R. S. M. A. annual meeting given the *Daily* for June 16, the terms of those for District No. 3 were transposed. S. G. Down was elected for the two-year term and Charles H. Gayetty for the three-year term.

American Railway Association—Division V

Features of Program Were an Address by Frank
McManamy and Papers by L. W.
Baldwin and W. R. Cole



THE MEETING was called to order by the Chairman, John Purcell, at 8:30 a. m.

Before taking up the regular order of business the chairman appointed the following tellers to

act in the election. General tellers: A. E. Calkins (N. Y. C.), Samuel Lynn (P. & L. E.) and F. H. Lee (B. & O.); for officers: J. J. Boyd (Penna.) and W. A. Callison (C. I. & L.); for general committee: W. H. Flynn (M. C.) and Ira Everett (L. V.); for nominating committee: H. H. Lanning (A., T. & S. F.) and R. H. Dyer (N. & W.). The chairman announced that the ballots would be taken up during the early part of the meeting.

The Development of Railroad Regulation

By Frank McManamy

Commissioner, Interstate Commerce Commission



Transportation is a public necessity, therefore a public function, and under the present policy of the American people, is to be conducted under a system of adequate governmental regulation. Railroads are primarily public highways and only incidentally common carriers—an important distinction too frequently overlooked. The solution of our transportation problem, is, therefore, not a

matter which rests primarily with the railroads or with any state or federal regulating body, but with the people who require transportation and who are required under the Constitution to pay a reasonable return for the transportation furnished. The solution of the transportation problems should, therefore, be approached in a spirit of "let us reason together" and should be worked out along broad lines of public policy and in the public interest.

In view of the importance of the problem and of the part which legislation must necessarily play in its solution, a brief review of the scope and effect of what the Government has done in the way of legislation affecting railroads may be of interest and give a clearer understanding of the situation. Few realize that the greater part of the legislation has been to help transportation. I am speaking now of the transportation machine as distinguished from the corporation which operates it. We must bear in mind that it is the duty of the government to see that adequate transportation

is provided just as much as to construct and maintain public highways, and that it has only delegated the duty of furnishing transportation to private corporations.

While the right of the state to regulate common carriers dates back several centuries, a right which has been sustained by an unbroken line of court decisions, regulation of railroads, as we now know it, is less than 40 years old.

The power of the federal government to regulate transportation rests upon the third clause of section 8, article 1, of the Constitution, which provides that Congress shall have power "to regulate commerce with foreign nations and among the several states."

A survey of the development of the railroads discloses that there are at least six distinctive periods in railroad regulation. The first period, from 1830 to 1870, was one of building with absolute freedom from regulation. The attitude of the public and the government was one of liberality and encouragement. During the latter part of the period the complete absence of regulation allowed unscrupulous persons to derive large personal gain at the expense of the transportation system.

Second Period

The period from 1870 to 1887 might be designated as the beginning of railroad regulation. About 1870 the attitude of the public changed from that of encouragement and became less favorable because of preferential rates, rebating, and scandalous financial manipulations. Rebating was extensively indulged in, particularly to large shippers. These practices caused much dissatisfaction. The first laws were passed by the middle western states between 1871 and 1875 and dealt almost entirely with discrimination and rebating. This legislation was upheld by the Supreme Court in the so-called "Granger Cases."

Because of the method followed at this time several investigations were instituted. The investigation by the Cullom Committee of the United States Senate in 1886 resulted in the enactment of the first federal legislation regulating railroads—the act to regulate commerce of 1887. This Act was primarily designed towards preventing discrimination and rebating and did not empower the Commission to prescribe reasonable rates. The other provisions in the original Act were subsidiary and had to do with the publication of charges so that every one might know what they were, requirements as to accounting practices to facilitate the discovery of irregularities, etc.

While this law was primarily to prevent discrimination between shippers, it was of great help to transportation as it prevented extortion by large shippers. Large shippers, such as the Standard Oil Company and the packers, could force rebates out of the railroads because of the amount of traffic they controlled. Leading railroad men appeared before the Cullom Committee in 1886 and advocated a law to stop rebating, stating that the large shippers not only forced rebating, but dictated the service to competitors. Vanderbilt told the committee that if rebating kept on, the oil people would eventually own the railroads. Losses from this source can not be estimated accurately, but one official said in 1888 that the gross receipts of the railroads in round figures were about \$800,000,000 per year, and that he believed \$100,000,000 of that had been paid out as rebates to powerful shippers. There were various other forms of rebating which deprived the carriers of much revenue—such as passenger rebating to large concerns, etc. Freight rebating, however, was the greatest item and the discounts frequently amounted to as much as 50 to 80 per cent of the tariff rates.

The Third Period

From 1887 to 1906 might be called the period of development of federal regulation. Most of the additional legislation enacted during this period was of minor character to help out the administration of the Act of 1887. The amendment of 1889 required the railroads to give notice of reductions preventing the so-called "midnight" tariffs which were used to favor large shippers. Because of difficulty in obtaining evidence, the Compulsory Testimony Act was passed in 1893. The trouble in enforcing decisions caused the Expediting Act of 1903. The original Act was not sufficiently strong to prevent various forms of rebating and the Elkins Act of 1903 was, therefore, enacted to strengthen the law.

An amendment to section 10 in 1889 made it a penalty for shippers to false bill freight in order to obtain cheaper rates. The Commission through its Bureau of Inquiry compels the observance of that section. The original Safety Appliance Act of 1893 was intended to promote safety, but has in many ways promoted efficiency in operation, and this is also true with respect to the locomotive inspection act and other safety legislation enacted later.

Fourth Period

From 1906 to 1917 was the first period of real regulation. The Hepburn Act of 1906 broadened the field of federal regulation. The most important feature was the authority of the Commission to prescribe just and reasonable rates. In the Mann-Elkins Act of 1910 the effectiveness of the fourth section was restored. The observance of this section is of great help to the

transportation machine as it in a measure prevents wasteful service.

In the 1906 Act the Commission's jurisdiction was extended to include all instrumentalities or facilities for shipment regardless of ownership, in order to give control of the private car lines and the so-called industrial roads and prevent extortion from the railroads by large shippers. After the passage of the Act of 1887 there were several ways by which large shippers could legally demand rebates from the carriers. Many large oil companies and other shippers owned their own cars; the packers owned their own refrigerator cars. Large shippers furnished cars for the transportation of their products and obtained excessive payments for the use of their equipment as well as exorbitant refrigeration charges. In an investigation in 1904 the president of the Santa Fe and the president of the Great Western testified that their roads did not like to be dictated to by shippers, but because of carrier competition they could not help it.

Another form of extortion which grew up after 1887 was by small terminal roads. Producers incorporated switching tracks or sidings into a railroad and thereby secured a large division of the rates. This form of rebating spread rapidly. The first case of record that I can find was the investigation of the salt trust in 1903. This concern owned nine mines at Hutchinson, Kansas, and had one mile of tracks around the works. It incorporated these tracks as the Hutchinson & Arkansas railroad. The railroads agreed to give this midjet road as a division 25 per cent of the rates to Missouri river not to exceed 50 cents per ton, which was equivalent to an amount ranging from \$15 to \$40 per car. The steel and lumber companies organized many of these miniature roads. A large company at Chicago organized its switching lines into a road and received a division of about \$12 per car. Up to about 1905 it had received rebates in this manner amounting to about \$3,000,000. All of this led to the passage of the provision as to allowances in section 15, preventing the payment of a sum greater than the cost of the service.

Other legislation was enacted during this period which was helpful to the transportation machine as a whole. The commodities clause in the Act of 1906 made it unlawful for a carrier to transport any commodity which it owned or produced other than lumber. This clause prevented railroad corporations from engaging in another business and transporting their products at a cheap rate to the detriment of transportation. In 1906, section 1 was amended so that carriers could be required to make physical connections with lateral branch lines of road.

Up to 1920 government regulation was confined mainly towards restraining abuses of transportation rather than something constructive. Important phases that had been left unregulated were capitalization and service. Railroads up until that time had absolute freedom in the issuance of securities. The lack of authority to regulate security issues tended to obscure the relationship between the railroad investment and railroad earnings, and also to lend color to the widespread opinion that the roads were overcapitalized.

Regulation of service was likewise neglected. The problem of adequate transportation service had received little attention. Because of competition shippers were in many cases treated with liberality and wasteful service became a matter of routine. These defects were realized during the first year of the war period 1917, when the necessity of providing adequate service was paramount. Because of traffic congestion and car shortage, Congress in 1917 enacted the car

service section, giving the Commission jurisdiction to establish and enforce rules and practices with respect to car service.

As a result of several conditions transportation service in the latter part of 1917 was inadequate to handle the unusual traffic burden of the war period. The necessity for complete unification during the extraordinary war conditions resulted in federal control.

Federal Control Period

I do not intend to discuss the relative merits of private operation as against government operation during federal control; whatever may have been its faults or its virtues the responsibility rests with you. The principal lesson of federal control was to demonstrate the possibilities and need for unification.

At the end of Federal control, the railroads were turned back with a reconstructed system of government regulation. The Transportation Act of 1920 was designed not only to cure defects in old legislation but to give assistance to the transportation industry. While it provided financial safeguards for the maintenance of credit, the main problem was to provide for co-operative effort and to stimulate the fullest utilization of the transportation plant through unification. In commenting on the serviceability of this Act in the solution of these two problems, I want it understood that I may not agree with the wisdom of certain of its provisions.

Period Beginning in 1920

The new legislation can well be divided into two general groups: (1) Provisions dealing with unity of operation and service; and (2) provisions to stabilize credit. A series of laws were also passed dealing entirely with the termination of Federal control, but they now possess only historical interest. Provisions were also made for temporary loans to the railroads until their credit could be re-established.

Unification

The new legislation proposes to secure the fullest use of the existing plan through permissive consolidations. The Commission must draw up a plan for consolidating all roads into a limited number of systems and the railroads may then consolidate in conformity with that plan. The theory of the law is that the weak and the strong roads will be so consolidated as to form evenly balanced systems and that such consolidations will result in more effective utilization of plant and equipment, prevent duplication, and be the means of attaining an operating unity.

The Act also provides that before any new road or extension can be constructed, the Commission must first find such construction to be in the public interest and give its approval with a view to building up a transportation machine responsive to public needs.

The car service section was broadened. This section prohibits discrimination between carriers, and is a positive factor to provide adequate service and facilities. The public control over service acquaints the regulating body with the needs of the carriers and brings forcibly to its attention the necessity for adequate rates. Along this same line, the Commission was given power to require the joint use of terminal facilities in order that the transportation plant might be fully used to meet public needs. The unification of facilities means economy and efficiency in operation.

Provisions to Stabilize Credit

The other main purpose of the Transportation Act was to assist in stabilizing the credit and several provisions were inserted for that purpose. The level of rates, railroad credit, and capital investment are interwoven subjects.

The Act recognizes that transportation must have sufficient revenues to attract capital. Congress established a rule of rate making, as well as a principle to govern a fair return, and the disposition of the excess revenue. Section 15A provides that a level of rates be established sufficient under honest, efficient, and economical management to earn a fair return. May I call your particular attention to the requirement as to honest, efficient, and economical management? While section 15A is usually spoken of as safe-guarding the rights of the corporate carriers, its purpose was also to assist in maintaining proper credit so that the transportation system might be satisfactorily operated and developed.

Congress realized that rates could not be established that would give uniform earnings to strong and weak carriers alike, and that excess earnings were bound to be realized by the strong roads. One-half of such excess is to be collected and deposited in a contingent fund to be used in the furtherance of transportation needs by making loans and in purchasing and leasing equipment to carriers. This provision recognizes the unity of the transportation machine and is to strengthen the credit of the carriers as a whole rather than to enhance the income of particular carriers.

Hence regulation has now become a dual function—first to prevent undesirable discrimination, and second, to determine general rate levels and control profits. Theoretically, at least, the law not only protects the public from high rates, but protects the railroads from rates that are too low.

But a reasonable rate level will not encourage investment of private capital unless there is a guarantee against financial mismanagement. These practices in the past have had a significant influence on rates, service, and credit. It is not necessary to discuss the relationship of overcapitalization to rates and service other than to point out that overcapitalization leads to impaired service through its destructive influence on the credit of the carrier. So the Act provides that a carrier must secure authority from the Commission before securities can be issued. It is usually thought that this section is to protect investors, but the regulation of security issues is also necessary to help and protect service.

The authority of the Commission was also extended to prescribe minimum rates as well as maximum. This was intended as a safeguard from rate wars. Power was also given to prescribe division between carriers and in so doing to give due consideration to their financial needs. This was to help solve the difficulties surrounding co-existence of the weak roads and the strong roads. Under the old system, divisions were a matter of bargaining among the interested carriers, and in many cases strong carriers forced inequitable divisions upon weaker ones.

While the primary purpose of the first legislation was to remove discrimination between shippers, it was also of immense aid to the transportation industry. Those who advocate a hand-off policy on the part of the Government and who simply repeat the slogan "let the railroads alone" forget that the effect of the greater part of legislation has been to help the railroads—if not the corporations operating them. So far as the railroad as a public utility is concerned, a study

of the legislation from the first land grant down to the Transportation Act shows that it has been the policy of the government to be helpful to the railroads even to the extent of protecting them from themselves. Therefore the phrase "Help the railroads along" would be more representative of the effect of regulation.

The provisions for an adequate transportation machine involve a difficult adjustment between private rights of the operating interests and the public interests. The operation of this law and the performance of railroads under it have not been fully co-ordinated and this has given rise to the oft-repeated phrase that the railroads are on trial. The railroads, like every other human agency, are always on trial. So long as they perform with efficiency and economy the functions for which they were created, they will continue to exist in their present or in an improved form. I am not overlooking the fact that within the past score of years 400,000 miles of hard-surfaced highways have been built in this country on which millions of automobiles and motor trucks now carry on a large portion of the transportation service that otherwise would be performed by the railroads. I think that it is not too much to say that we are at present passing through an evolution in the transportation industry perhaps greater than from the stagecoach to the canal, or from the canal to the railroad. It is this that will tax to the utmost the constructive ability and genius of those in charge of the mechanical departments of our railroads.

The solution of the railroad problem is a matter for the people to decide. It is the duty of all to follow the policy indicated by them. The success of the present laws depends largely upon the attitude of the carriers themselves. They must show in practice that they realize that they are performing a public function. They must willingly agree to co-operative arrangements in order to promote the general transportation needs. And above all, they must realize their responsibility to the public in operating efficiency and must co-ordinate their administrative control, operating practices, methods of maintenance, and purchasing plans in such a way that will promote economies wherever possible. Unless this is done, the rate features of section 15A will fail either to protect the public against excessive charges or to give the carriers adequate revenues.

There are innumerable ways in which this Association and its members can promote economy and efficiency in operation and thus carry out the policy of the Act. Some of them are as follows:

Standardization—The value of standardization of equipment has long been recognized. This does not mean stagnation but improvement along certain well defined lines even though it does sometimes result in sacrificing some pet theories or designs. Wonderful progress has been made in the standardization of freight car design, construction, and repair; in fact at present we are approaching the point where, except for the older types of cars, there is no good reason for sending freight cars home for any repair short of rebuilding. And even rebuilding, in the case of damaged cars, is quite generally being done by the line responsible for the damage. There can no longer be doubt as to the feasibility or desirability of complete standardization of all general service cars, leaving each road to provide such special equipment as the character of its local traffic may require. Complete standardization of passenger cars is not so essential, although it will bring about economies in manufacture and in carrying

charges on repair parts which will result in substantial savings.

Standardization of locomotives is not so urgent. However, it would produce substantial economies in manufacture and result in saving in the engineering department to have standard designs as far as service conditions will permit.

Idle Equipment—This means not only equipment that is idle due to being unserviceable, but also to equipment which for any other reason does less than a reasonable day's work each day. It is quite common to disregard the cost of an excessive number of locomotives standing idle either awaiting repairs or ready for service. As they are always stored directly under the eyes of the mechanical department officials, it is difficult to understand just why they should be overlooked unless the carrying charges have never been calculated.

It is somewhat different as to freight cars because they are stored at various places along the line. Unless a careful check is made the number of idle cars, even of foreign cars, may be overlooked. However, there is little difference between the per diem on a foreign car and the cost of carrying a home car. The per diem is about \$1 a day and the depreciation and interest charges on the average box car will run very close to \$1 per day. To pay the cost of keeping a car standing idle for one day will require the revenue earned hauling one ton of freight 100 miles, and the cost of one idle locomotive for one day equals the revenue earned hauling one ton of freight 1,200 miles. Carrying charges on the difference between 10 per cent and 17 per cent of locomotives unserviceable consumes the revenue of hauling a ton of freight, 5,392,800 miles per day and approximately two billion miles per annum.

The loss on unserviceable locomotives, however, is a relatively small item in comparison with the waste of time by locomotives at terminals. The average locomotive performs about six hours' service out of each 24. This is partly due to lack of terminal facilities, but partly also to methods and organization at terminals. Careful investigations have repeatedly shown an average loss of from three to five hours getting locomotives to and from trains. A similar loss getting them across the cinder pit leaves a relatively small percentage of time available to make necessary repairs. Surely it should not be too much to expect that a locomotive would actually earn money 50 per cent of its time. The savings in carrying charges that would result from a more intensive use of locomotives and cars would be startling.

Budget System of Doing Work—Much has been said in favor of the budget or appropriation system in handling maintenance expenditures. It is not my purpose to discuss the advantages and disadvantages of this system, but I wish to refer to what may be called the budget system of distribution of work. One of the most valuable assets a railroad can have is a corps of steady, contented, reliable employees. They can not be secured where it is the general practice to attempt month by month or week by week to make reductions in the payroll correspond with fluctuation in business. Of course, I know it is not possible to disregard revenue in order to keep a uniform force of employees, but with a little more foresight that should not be necessary. Year in and year out it is possible to make a close approximation of the number of class repairs that will be required during each year to maintain equipment in good serviceable condition. It is true that we have good years and bad years, but taking one with another it is entirely feasible to calculate closely

just what will be required in the way of class repairs. If this can be divided into equal parts and the shops assigned a certain number of regular class repairs per month, there will be no increased cost in the total annual expenditure if the shops are kept working at a rate which will turn out that number per month. Under this plan it is true that during the dull months the number of locomotives in white lead will increase, but under the other plan the number in bad order will accumulate. It is cheaper and much more satisfactory to store locomotives in white lead than it is to store them in an unserviceable condition.

The big difference between the two policies is apparent when business begins to improve and there is a demand for power and at the same time for men. The forces can not be increased to correspond with the increased demand for power. The result is a large amount of penalty overtime causing more or less dissatisfaction and the use of equipment which is not in good condition. This policy causes losses all the way along the line, first, in performing work under pressure without sufficient force or facilities; second, in operating equipment not in good condition resulting in increased repair and fuel costs; and third, in causing delay to traffic with resulting expense for overtime, and in many other ways.

No doubt this has all been said before in various ways, but it is also true that the results of 1923, which have been pointed to with pride so far as the movement of traffic is concerned, strongly indicate the need for saying it again. Maintenance of equipment expenditures during 1923 were \$1,465,405,904 or about one dollar out of every four earned by the railroads and expenditures for new equipment during the same period amounted to about \$690,857,266. The members of this Association therefore were responsible for a total expenditure of considerably over \$2,000,000,000. Increased capital expenditures require increased revenues.

I have no criticism to offer of the results in the way of handling traffic for the year 1923, but we may as

well face the facts. While there was a tremendous increase in cars loaded over 1918, there was but a two per cent increase in revenue ton-miles, and to accomplish this we had nine per cent increase in tractive power, 32.9 per cent increase in maintenance expenditures, and 65 per cent increase in capital expenditures. When the capital expenditures and the operating expenses increase in greater ratio than the increase in revenue ton-miles or increase in revenues, we are headed towards either increased rates or red figures in the ledger.

This brief review of the laws relating to transportation has been given because the members of this Association are largely responsible for efficiency and economy in the maintenance of equipment and to show the importance of the most complete co-operation in the interest of operating efficiency if the railroads are to continue to enjoy the benefits of existing laws.

Summing up what I have said, the big job ahead of the members of this Association is to see what can be done to eliminate losses all along the line. I appreciate the difficulty of improving terminal facilities to avoid terminal delays, but it can and should be done. I realize it costs money to adopt improved methods and put in modern machinery, but to reduce maintenance costs few Boards of Directors would be so unbusinesslike as to refuse to appropriate necessary money for improvements when it could be shown that the net return could be thereby increased. One of the things for which I think the Mechanical Department can rightfully be criticised is that you are not aggressive enough in selling your good ideas to the management. Develop your plans, calculate the saving which will result, show the management that in asking for necessary funds you are working in their interests, and then work for the adoption of what you know to be right.

With adequate facilities and the support and co-operation of the management the members of this Association can be relied upon to provide the necessary equipment to meet the transportation needs.

Address—The Training of Shop Supervisory Forces

By L. W. Baldwin
President, Missouri Pacific



No railroad ever can be better than its motive power. Without adequate and dependable power there can be no hope for successful railroading. And the condition of our locomotives is largely dependent on the supervisory forces in our shops and round houses. There is no more important duty than that of training our supervision.

An operating division of a railroad is no better than the superintendent of that division; likewise a locomotive shop is no better

than the man in charge, be he called master mechanic or superintendent. We may send all of our experts to a division to help a man operate it or to show him how to operate it, or we may send them all to a shop to show

the man in charge how to handle it, but in neither case can we get results unless we have, as the man in charge, one who is sympathetic with progress and one who is willing to keep an open mind and is possessed of a mind able to absorb and get from such experts their good practical suggestions and instructions.

Apprenticeship the Foundation

It is an accepted fact that the problem begins with the selection of the apprentice. An apprentice should have at least a fair elementary education and something of his habits, inclinations, personality, home life and surroundings should be known to the employing officer, as every care should be exercised in selecting apprentices. Throughout his apprenticeship, the future mechanic and possible future supervisory officer should have the personal supervision and sympathetic leadership of his foreman.

Some "Yard Stick" or system of measurement should be devised so that each apprentice may be properly advised and made to know the quantity and quality of work done by him as compared with the work done by other apprentices in the same craft in the same shop; and I even

than the man in charge, be he called master mechanic or superintendent. We may send all of our experts to a division to help a man operate it or to show him how to operate it, or we may send them all to a shop to show

believe it would be better if he was shown similar information regarding the work of other apprentices doing similar work in other shops. Further, a systematic record of his progressive steps should be carefully kept and he should be required to pass stipulated examinations at stated intervals in his apprenticeship to insure his being a satisfactory and valuable mechanic when he is promoted to that position.

In addition to shop work, some kind of school system should be devised in larger shops under which the apprentice may have an opportunity to get technical knowledge at the same time he is attaining practical experience and instruction. It is during this period in the career of the apprentice that he should first be taught right thinking, the necessity of loyalty, good citizenship, and the will to do!

Inspiring the Mechanic

When the boy has served his apprenticeship and becomes a mechanic, it becomes the duty of the gang foreman, the foremen and other supervisory officers to aid him in developing new ideas in his work, a sense of devotion to duty and to continue to interest him in being able to do a little better than the other man—possibly a little more than the other man. Again, develop "yard sticks" by which the work of the mechanic may be measured in order that the man may know the results of his labors as compared with the work of all other men working in similar positions, for when one works and does not know himself and knows his superior does not know what is accomplished, what possible incentive is there for him to do more?

It is, therefore, incumbent upon the supervision to devise the proper yard stick for the measurement of work done and for the purpose of acquainting all with what is accomplished. Otherwise you might liken one's work to a man moving a pile of sand from one location to another while one man is filling the vacancy made by him on one side and still another is taking away the second pile as fast as he builds it. He sees no results of his efforts and unless you can find some way to advise a man working in this way of the results of his efforts there can be no incentive or continued desire to do.

Throughout all of this, men should be treated fairly and justly by the supervision for nothing is more difficult to overcome than prejudice and resentment brought about by injustice and lack of appreciation.

Every man in the mechanical department should be informed of the importance of his work and its relation and relative importance to the whole, as compared with other work making up the whole. Every individual should be made to understand that a chain is no stronger than its weakest link and unless his particular work is done well the effort of his fellow employees, along with his own work, is wasted. If by chance a failure or accident occurs because of the failure of some one employee to do his work properly and well, it should be shown to him so that he will understand it. He should be told not only that his work was wrong but he should be given a detailed explanation, showing the result of the wrong work.

If we expect the best that is in men, we must let them know what is required of them and why. I would like to illustrate what I mean by referring to a personal experience. At one time an emergency made it necessary to do a certain piece of work in a given time. The task looked almost impossible to some of my associates, but I said it would be done. Then I went to the men and told them all about it. I told them that it had to be done and why and I told them that I was depending on each and every man to do his part. The work was finished ahead of schedule.

Encourage Habits of Steadiness and Reliability

Another important thing is the necessity for teaching the man who becomes a "boomer" does not as a rule place to place, I do not mean that an employee should specialize in one particular operation. He should not. The man who does that, automatically limits the extent to which he can advance. Employees should be encouraged to master as many different operations as possible because it is the man with a good, general, practical knowledge of more than one operation—the more the better—who is best fitted for a supervisory position. But the man who becomes a "boomer" does not as a rule provide good material for promotion. It is the man who establishes a reputation for steadiness and reliability who usually gets the most consideration upon a promotion is to be made. Employees should be taught to realize this.

Employees should be encouraged to develop their initiative from the day of their employment. They should be encouraged to study their work intensively and they should be encouraged to learn all they can about the work of the men next to them. Employees who make mistakes trying to *do something* should be encouraged rather than censured. A careless or reckless waste of time or material in attempting foolish or impractical things is not to be condoned under any circumstances, but the employee who is willing to try to do something a little better than it has been done before needs and should have the encouragement and assistance of his superiors.

Employees should, of course, be taught the importance and the value of being loyal to the company as well as being good, loyal, dependable, patriotic citizens. Loyalty to the company and pride in their work are two of the most important things men can develop.

Selecting Men for Promotion

Whenever there is a vacancy for a gang foreman or other foreman, there should be many competent and available men for the position. Every characteristic and quality of each available man should be carefully taken into consideration by the supervisory officers in order that the man best fitted, and a man who can maintain the respect of the men who will come under him, is selected to fill the vacancy. This should be followed at each succeeding step in the selection of higher supervisory forces. And each time a vacancy is filled utmost care should be exercised to the end that no injustice is done in selecting the man for the position—either to the individual or to the property.

Foremen and their superiors should themselves learn to study the various reports that are made with a view to understanding both the reason for them and the information contained in them and how best to use that information in obtaining better results. Men should be taught that reports are not prepared primarily for the general officers of the railroad but that, except in rare instances, they are designed with a view to providing the immediate supervisory officers with a record of work being done. They should, with regularity, use such reports to provide a proper incentive for themselves, comparing their work and their results with others and using it to inspire their associates and subordinates. I believe this is a place where some of your hardest work and greatest energy can be best applied.

There is hardly any work done on locomotives or cars that cannot be worked out on a basis of cost by using the man-hour unit of measure, and I have, personally, from time to time, gotten great good out of studying the cost for each class of work on locomotives or cars by measuring the results in man-hours, not only for labor but for material as well. If such a yard stick is used, it

is most helpful for each gang of men, at least, if not each individual man, to know what their work, or his work, is costing in comparison to that done by other gangs or other men.

I have found by using the man-hour basis over a period of time that we can get yard sticks without much accounting or increased clerical force and the cost can be so worked out as to provide economically, an incentive for efficiency and economy. Every man feels better when he knows that his work has been done well and further that the man to whom he reports knows that it has been done well. Foremen should be taught to analyze and use reports of this kind so they can, in turn, promulgate the information among their subordinates and associates and use it if and when they may be promoted to positions of greater authority and responsibility.

Foreman Must Maintain Genuine Interest in Men

All of this, of course, requires constant, close association of all supervisory forces and a personal interest that must be genuine. One of the biggest and most important tasks of the foreman, is to manifest the necessary personal interest in every apprentice and every mechanic under his supervision and inspire in them an ambition to learn all about their work and accomplish it a little better and a little more efficiently. As the supervisory officer is promoted from position to position, it becomes increasingly difficult to maintain that personal contact and personal interest, but it is none the less important and necessary that he do so and so handle his affairs that it will be possible for him to do so.

One of the results from this association of supervisory force and men should be the encouragement of every employee of every degree to develop new ideas—better methods of doing work. Supervisory officers should encourage employees to make suggestions regarding everything and anything connected with their work. Foremen and supervisory officers should receive and treat all such suggestions with utmost seriousness. If the idea submitted is a practical one the man responsible should receive full credit and encouragement. I venture to say that there is no shop in this country so operated that any of you, conversant with the particular class of operations, cannot go to it and make an improvement in the production by studying the methods. You can do that if you go there with an open mind for that purpose and stay there long enough to study the entire operation. Therefore, it is reasonable to expect good suggestions from all of the men and from every man in connection with his particular work. By so doing it will be possible to lower your costs and, at the same time, increase your output.

There must be a point of contact between the employees and the management to insure justice being done employees. Foremen and supervisory officers who are properly trained should welcome, with the employees, such contact because, in the last analysis, no right-thinking foreman or supervisory officer wants an injustice done to another man. Therefore, I believe it is wise to set up and encourage the setting up of such contact as will insure full justice being done to all people who are working in the shops.

Just as apprentices and mechanics should study their work and duties so as to be able to put the most into them and get the most out of them, so foremen and other supervisory officers should study their duties. They should study the achievements of the men under them and they should study the methods and practices in use. There is room for great improvement in the efficient and economical operation of our shops if the supervisory officers will get into this question.

Gang foremen, foremen and general foremen should

apply the same comparative study to their gangs, and the men under them, that the mechanic applies to himself. They should know what results other foremen and other gangs doing the same kind of work are making and they should again apply the yard stick to their own efforts.

And, just as when there is a vacancy in the ranks of the gang foreman to be filled so there should be many men available when there is need for a man as general foreman, master mechanic, superintendent of motive power and every other supervisory position. And as in the first case, every consideration should be given to all of the available men whenever a promotion is to be made. The qualifications of each man should be most carefully studied and his fitness for the particular duty should be thoroughly gone into.

What can be more important to a railroad than to have a round house foreman who can and will have the locomotives ready for service when they should be ready. And, likewise, there is nothing more disastrous than for the round house foreman to fail to have the power ready when it is needed and should be available. He also must be a man who can and will study his work, his duties and his responsibilities, and keep account of his costs and expenses and work out ways and means to handle his power most economically as well as most efficiently.

General Officers Must Get Down on the Ground

The work of the general supervisory officers can be made more efficient in exactly the same way. They should have yard sticks by which they can measure the achievements of one shop or round house against another. And they should see to it that all of the men reporting under them have an opportunity to study these comparisons. General supervisory officers should analyze whole shops and round houses and the relations of one to another and of each to the whole railroad. This, naturally, cannot be done in hurried inspection trips that are made at more or less infrequent intervals. General supervisory officers must get down on the ground and study out these and their other problems by close application and personal contact just as the lesser supervisory officers and the individuals must study out in detail, their problems.

Study New Tools and Appliances

General supervisory officers can and should devote careful study to the use of machine tools. They should study the output of all such tools, analyzing them. They should know when such a tool should be replaced or a new one installed with advantage. They should constantly keep posted on the latest developments along this line and when it is decided to install a new tool, they should know the best one to buy and where to get it at the best price. They should know also, that the installation of a new tool will result in greater efficiency and greater economy, for the installation of new and improved machinery can be carried to excess and to a point where it is wasteful. Every precaution should be taken to know definitely the kind of tool needed and what results can reasonably be expected when it is put in operation. I believe a committee of general supervisory officers could well afford to devote a definite part of their time, in addition to their other duties, to intensive study along these lines.

All supervisory officers should keep constantly posted on new appliances for locomotives and cars which will result in more economical operation and maintenance. In order to do this it will be necessary to study each new device and every innovation. This is most important and proper handling gets great results both in service and economy. General supervisory officers also should keep abreast of the times in all matters such as improved design

and construction of locomotives and cars. They should know the latest and most approved and best methods of rebuilding engines and cars.

I always have been sympathetic with and believe in such conventions as this because men who are in charge of shops have an opportunity to meet with each other and study these wonderful exhibits both of design and methods for the better handling of their work. As soon as I arrived yesterday I made a tour of the exhibits and this is, without question, the greatest exposition of railway mechanical devices ever assembled. The railroads are being benefited more each year by these exhibits and these conventions.

In conclusion, with reference to the proper training of shop supervisory forces, we must remember that throughout it all there must be a feeling of real fellow-

ship, real sympathy and understanding for the problems of the other fellow. After all, service is the keynote of the whole thing: service to the company, that the company may give service to the public; and service to each other that all may prosper and progress together.

J. L. Wood Reads W. R. Cole's Paper

The Chairman: W. R. Cole, president of the N. C. & St. L., was to have addressed us on the subject of Government Relations to Transportation, but he has found it impossible to be present in person. He has, however, prepared an address, which will be presented by J. L. Wood, purchasing agent of the N. C. & St. L. Mr. Cole regrets very much that he cannot be with us in person.

Address on Governmental Relations to Transportation

By W. R. Cole

President, Nashville, Chattanooga & St. Louis



It is universally conceded that railroads, on account of their quasi-public character, and the fact that the maintenance of an adequate and efficient transportation system is a matter of vital concern to the whole public, are proper subjects of public regulation. Conceding that private ownership and operation of the railroads is desirable, and upon this point the American people have spoken in no uncertain terms, the

only ground for difference which may exist is the extent to which governmental regulation should proceed. The advantages of private ownership and operation, as compared with government ownership and operation, consisting, as they do, in the main, of the superior economy and efficiency, the preservation of private initiative, the freedom from the deadening effects of political control which characterized the former as compared with the latter system, should, under any system of governmental regulation, be preserved to the fullest extent compatible with the public interest.

It must be admitted that regulation to any extent necessarily implies a surrender pro tanto of the full freedom of action which is retained by the management of any purely private business as distinguished from that of a common carrier, but it would seem wise to limit the invasion of the domain of management to those regulatory measures which are indispensable to safeguarding the public interest in transportation. If this view be sound, then it would seem that governmental regulation should be substantially confined—

(1) to insuring transportation to all alike on equal terms, without discrimination, and at rates which are reasonable for the service performed, and, at the same time, sufficient to insure adequate support for the industry;

(2) to the maintenance of an adequate and efficient transportation machine continuously operated, in order that the expanding needs for transportation of the commerce of the country may be at all times fully met;

(3) to insure to the fullest extent possible the safety of railroad operation.

To expand the system of regulation beyond the three main objectives just referred to is needlessly to hamper railroad managements and render more difficult their task of serving the public. It is perhaps not too much to say that the efficiency of American railroads has been in inverse ratio to the amount of governmental regulation to which they have been subjected. At all events, it is a fact that for many years prior to the world war, railroads were subjected to all manner of restrictive laws and regulation, both state and national, with the result that they found themselves serving 49 masters, including the federal government, under a confused system of regulation, the laws and regulations of one section frequently conflicting with those of another. This period was marked by constantly mounting costs of operation and the constant decrease in transportation charges and, consequently, net earnings. The natural result of this process was that the railroads, as a whole, lost caste in the eyes of the investing public, their credit became impaired, and consequently their ability to expand their facilities adequately to keep pace with the additional demands for transportation was hampered. This was the state of affairs which existed at the time we entered the great world war and, as a part of our war program, the government took over the operation of the railroads during the war emergency and undertook to operate them as a unified whole.

It is not my purpose to dwell on the period of federal control. It is all still fresh in our memory. Perhaps the least said about it the better, although it may not be amiss to suggest that the results of federal control should afford but small comfort even to the most ardent advocate of government ownership. At the end of federal control, the railroads, as a whole, were earning a sum barely in excess of their operating expenses; many of them were not earning their fixed charges; a large portion of them were not even earning their operating expenses. The continuation of this condition meant inevitable bankruptcy to the railroads of this country and incalculable loss to the shipping public. This fact was recognized by Congress and by the public. The result was the enactment of the Transportation Act of 1920. This was not a hastily enacted piece of legislation. It was the result of the best thought of the best minds of the country on the transportation problem. It was the result of years of

study, which had been given to this problem, notably by the Newlands Commission, which had not quite completed its labors at the time we entered the war.

Transportation Act a Constructive Law

I consider the Transportation Act of 1920 the most constructive piece of railroad legislation; in fact, in my judgment, it is the only constructive piece of railroad legislation which has been enacted within a generation. The heart of this act is Section 15-A, containing the ratemaking provisions of the act. For the first time in the history of railroad legislation it is recognized, and laid down as a principle of law, that while rates shall be just and reasonable, they shall at the same time be adequate to afford the necessary expansion of railroad facilities to meet the growing commerce of our country—adequate, in other words, to yield a fair return on the value of the property devoted to the public use. This applies to railroads as a whole or in groups; at the same time, provision is made for the payment by any single railroad in case it earns in excess of six per cent per annum of half of such excess into the public treasury.

And yet demagogues are going from one end of this country to the other claiming that this provision constitutes a guaranty on the part of the government of railroad earnings. A guaranty implies a guarantor. If the United States government were guaranteeing railroad earnings, it would be indebted to the railroads of this country today in the sum of approximately one billion dollars, owing to the fact that for no single year since the end of federal control have the railroads earned the fair return on the value of their property as provided in this act.

Section 15-A of the Transportation Act of 1920 merely provides that in exercising its extraordinary powers of regulation, the power of life and death over the railroad properties of this country, the government will so exercise this power that under honest, efficient and economical management, they will be permitted to earn in addition to their operating expenses a fair return on the value of the property devoted to the public use.

Is not that fair? Is anyone to be heard to say that railroads should not be permitted to earn that fair return? And yet that feature of the act is constantly attacked and misrepresented.

Now the Transportation Act is not perfect; few human instruments are. But it deserves a fair trial under normal conditions. The Congress of the United States should not continually juggle with this important subject, this vital subject of our great transportation interests, for after all this is an interest of the public, it is an interest of the public far greater than it is of the people who own these properties. Certainly no amendments should be made to the act except such as, in the light of experience, are found necessary and desirable in the public interest.

Act Justified By Its Results

Surely the results of the act have justified it. Has there ever been a greater transformation in any situation than that which has come about with the railroads since the end of federal control? This is apparent when you consider that in the year 1923 the railroads moved a larger volume of traffic than in any similar period in their history, with less congestion and with substantially no car shortage; when you consider that in excess of one billion dollars was spent last year for additions and betterments to these properties, largely from funds borrowed on the faith of the national policy as expressed in the Transportation Act. When you consider these facts and take into consideration further the enormous sum, aggregating, as I recall it, some \$1,800,000,000, which was spent

in the maintenance of these properties during 1923, it is readily apparent the enormous part which reasonable prosperity for the railroads plays in the business and commerce of the country.

The passage of this act was thought to mark a new era in railroad legislation; that it would, if not entirely, at least measurably remove railroads from the blight of politics, just as had been done in the case of the banking interests with the passage of the Federal Reserve Act. But, no, the lure of railroad baiting for politicians of a certain type is too strong to allow them to give it up without a struggle, and so the railroads are confronted with new attacks. As a consequence, nearly 200 bills were introduced into Congress this session, having for their purpose everything from the minor regulation of some insignificant operating detail to apparently the utter destruction of the railroads.

The Plan of Attack on the Railroads

These attacks against the railroads are being pursued along three general lines. The first of these is on the valuation of railroad properties, and the father of that movement is the father of the original Valuation Act, Senator LaFollette of Wisconsin. The present Valuation Act was passed in 1913, just 10 years ago, and passed at the instance of this same Senator LaFollette, at which time he assured the American people that a valuation of the railroad properties of this country, conducted in accordance with the provisions of his proposed legislation would reveal the fact that there were untold millions of dollars in the outstanding securities of the railroads, all of which would be wrung out by passing them through the LaFollette wringer.

Now what do we see? Instead of his prophecy being fulfilled, it appears that the Interstate Commerce Commission has carried its valuation work on far enough, at a cost to the government of many millions of dollars, and to the railroads of many more millions of dollars, under the provisions of the Valuation Act, until it appears that this water is not there, and that instead of the amount of outstanding capital being vastly in excess of the value of these properties, the value of the properties will equal if it does not exceed, on the final valuation, the securities outstanding. So, realizing that his plans have gone astray in some way, this very agile statesman, nothing daunted, conceives another idea about valuation, and this time it consists of the simple expedient of confiscating about one-third of railroad values. Of course that would be a very simple, easy thing to do, if Congress would enact such a law and the Supreme Court of the United States would uphold its constitutionality, although I cannot say very much for the morals of it.

This new scheme of valuation has various ramifications. One of them is to take the present value of railroad securities on the market and use that as a basis for valuing the properties. As the government has control of the revenues of the railroads through rate-making authority, it would be a very simple expedient to make rates so low that the properties from the standpoint of earnings would be substantially valueless, which, of course, would be reflected in the market value of their securities, and thus government ownership could be brought about—which is the ultimate purpose of more than one group that is actively promoting attacks on the railroads—at a comparatively small outlay, provided the properties were worth anything by the time they had gone through this process of disruption and slow death.

Let us see just what effect that process would have on rates for transportation. It is a fact that at the present time the operating expenses and taxes of the railroads

consume approximately 85 per cent of their revenues. That leaves 15 per cent for fixed charges, dividends, etc., as representing the return on their values. So that if you lop off one-third of those values you will have succeeded in lopping off only one-third of the 15 per cent of revenue, which is 5 per cent, and it might result in a reduction in rates of 5 per cent, but accompanied by a reduction in the net revenues—because all of this comes out of the net—of 33⅓ per cent. And it can be well imagined what the effect on the finances of the railroads would be of any such reduction in their revenue, and how much credit they would have left after that process had been completed and how impossible their future expansion would be; to say nothing of the disastrous effect on the business of the entire country and on every class of its citizens.

It is strange that with all of this talk about the railroad problem the politicians of this type inevitably stick to the proposition of reducing the only element of railroad revenues which is lower than it was, say, in 1916. The net earnings of the railroads of this country last year were less than they were in 1916, despite the fact that they had spent some four billion dollars in improvements since 1916, so that the return on the capital invested was less last year than it was in 1916.

There is no suggestion of a reduction in wages or a reduction in the cost of materials which the railroads must purchase, but it must all come out of the 15 per cent of revenues which represents net earnings. And there seems to run through it all a sort of a thread of thought that railroads are creatures apart from other kinds of business, that by some process of magic the ordinary rules of business conduct can be violated with impunity in their case, when as a matter of fact railroads do not differ in their essential problems from any other manufacturing process.

It is perfectly obvious that private capital cannot be induced to invest in railroad enterprises if it is known and understood in advance that it cannot hope to secure a reasonable return on that investment. Under those conditions there would be no other recourse except government ownership, with all of its deadening, paralyzing effect, accompanied by the inevitable political intrigue which we all know would come about in the operation of these vast properties under any political system.

The Aim of Attacks is Government Ownership

I am profoundly convinced that the great mass of the American people are unalterably opposed to government ownership of railroads or government operation of anything else that is not essential to the processes of government itself. But, while that is the sentiment, there are forces at work in this country today that are endeavoring to bring about government ownership, and it is high time that we awake to a realization of the full purport of these forces, of their aims, and their real objectives.

No one realizes more than the proponents of some of this radical legislation which is being proposed, the ultimate effect of it. They realize that if by any process the transportation system of this country can be broken down and its operation under private ownership made impossible, government ownership will inevitably follow, because we must have transportation. Do not believe that their program proposes to stop with the railroads. The railroads are merely the front line trenches. They have as their objective the nationalization of all forms of private property. It will not do for us to say, "Ah, well, the thing will work itself out some way." Things do not work themselves out "some way."

The second line of attack of these three general lines

to which I have referred is the proposal to reap the rate-making provisions of the Transportation Act, Section 15-A, of which I have given a brief description. The fairness of this provision cannot be successfully challenged. For Congress to go on record with a repeal of this provision is tantamount to saying that railroad investments are not entitled to a fair return; and the depressing effect of that on the credit of the railroads would be immediate and profound.

The third line of attack consists in proposals for direct legislation as to rates, which, in itself, is a vicious principle, irrespective of the particular measure involved.

A great deliberative assembly like Congress cannot deliberate about and pass judgment on as intricate and difficult a problem as the rate structure of the railroads of this country. This fact has been recognized from the beginning of government regulation of railroads. Hence Congress has wisely delegated that authority to a body of experts, consisting of the Interstate Commerce Commission. Now it is an exceedingly dangerous thing, and it is wrong in principle to start with, for Congress to legislate directly about rates; and the time-honored custom of handling these questions through this Commission of the government is, I am sure, the correct and proper one.

In the first place, I wish to say that it is my earnest conviction that the difficulties in which some sections of our agricultural community, notably the wheat farmers of the Northwest, find themselves, is not remotely related to the present scale of rates for transportation in this country. If you are going to say that the present low price of wheat is due to high freight rates, then by the same token is not the present high price of cotton and the present high price of corn due to the same thing?

Rates Not the Cause of Farmers' Distress

The truth of the matter is that railroad rates have nothing to do with either of them. The prices of those commodities are governed by the inexorable law of supply and demand. The trouble with the wheat farmer is that there is more wheat for sale than there is money with which to buy wheat, and the result is that the price of wheat is low. The reverse of that condition is true with respect to the cotton planter. The slight influence of freight rates on wheat is fully illustrated by the fact, which has been developed as a result of a recent investigation of the Bureau of Railway Economics and is included in a bulletin it issued last December, that not infrequently the fluctuations in 24 hours in the price of wheat in the primary markets is more than the entire rate from certain shipping centers in the interior, to those primary markets, running as high as 150 per cent of the freight rate.

I think I am within the bounds of truth when I say that generally speaking you can buy more transportation for a dollar in this country today than you can of most any other commodity. And why should not railroad rates be higher than they were in 1913, when railroads are paying double the wages, double the price for all supplies and material which they use in their operation? It would be extremely unreasonable to expect anything else. Aside from all that, there can be no possible justification for taking something away from one class in this country and giving it to another class purely on the ground of the financial necessities of the latter. I say that with a feeling of the most profound sympathy for that great class of our population which is certainly in a difficult economic position at the moment. But to establish such a precedent as that would constitute a remedy which would be worse than the disease.

Would it not be just as logical during a depressed con-

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dition of the coal market to reduce rates on coal; to pass something over to the coal operators, the steel manufacturers, the implement manufacturers—in fact to everybody? Of course, railroad operation could not survive on any such basis as that. It is so obvious as not to need discussion. There is no justification in morals, there is no basis in economics for any such system of rate regulation. And that is wholly apart from the fact that, as operating expenses and taxes absorb 85 per cent of railroad revenues, and this proposal would involve a reduction of 30 per cent in those particular rates, assuming that those rates were properly related to other rates, it follows inevitably that the traffic in agricultural products in this country would be moved at a heavy loss to the railroads.

I do not want to appear in the role of an alarmist, but take note of the fact that proposals are constantly cropping up which strike at the very foundations of our institutions, the very foundations of our government, proposals to curtail the power and authority of the courts of the land, proposals to require seven members of the

Supreme Court of the United States to concur in an opinion with respect to the unconstitutionality of any measure, thus in effect substituting minority for majority control; that is all designed to make the way easier for radical legislation.

Railroad Men Must Inform the Public

It is the solemn duty of all of us who feel as I do about this matter not to rest content with the smug air of self-satisfaction that things will eventually turn out all right. I have the utmost confidence in the common sense, the patriotism, and the fairness of the American people, but the American people must be informed, and it is the duty of men of your type to see that they are informed as to the facts of these important economic and political questions. It will not do to take things for granted unless we wish to see the gradual undermining in this country of those principles upon which our government was founded, and which have produced the finest example of a self-governed people that civilization has ever seen.

Election of Officers

John J. Tatum, superintendent of the car department, Baltimore & Ohio, was elected chairman of the division and J. T. Wallis, chief of motive power of the Pennsylvania System, vice-chairman. The following members were elected to the General Committee: Alexander Kearney, superintendent motive power, Norfolk & Western; C. F. Giles, superintendent machinery, Louisville & Nashville; L. K. Silcox, general superintendent motive power, Chicago, Milwaukee & St. Paul; John Purcell, assistant to the vice-president, Atchison, Topeka & Santa Fe; G. E. Smart, chief of car equipment, Canadian National; C. E. Chambers, superintendent motive power, Central Railroad of New Jersey; C. H. Temple, chief of motive power and rolling stock, Canadian Pacific; J. C. Fritts, master car builder, Delaware, Lackawanna & Western; O. S.

Jackson, superintendent of motive power and machinery, Union Pacific; F. H. Hardin, chief engineer motive power and rolling stock, New York Central; W. H. Fetner, chief mechanical officer, Missouri Pacific, and A. R. Ayers, assistant general manager, New York, Chicago & St. Louis.

The following were elected members of the Nominating Committee: F. W. Brazier, assistant to general superintendent rolling stock, New York Central; H. T. Bentley, general superintendent motive power and machinery, Chicago & North Western; J. J. Hennessey, assistant master car builder, Chicago, Milwaukee & St. Paul; C. E. Chambers, superintendent motive power and equipment, Central Railroad of New Jersey, and W. J. Tollerton, general superintendent motive power, Chicago, Rock Island & Pacific.

Address By the Incoming Chairman

J. J. Tatum: Gentlemen—I appreciate the compliment which you have paid me and for the honor you have conferred upon me in making me chairman of this Association. I have an idea that you could have done better, but you have exercised your usual good judgment in selecting the remainder of your ticket and have assured yourselves, I think, of a safe and sound administration.

One cannot be selected as the chairman of this Association without being mindful of its responsibilities.

Those of you who have been a party to the selection of me, as your chairman, must equally be mindful that without your hearty co-operation and full support in carrying on the work of this Association my administration can only result in failure.

I urge that all of you be loyal supporters of one another, by being sympathetic in the effort to co-operate to the fullest possible extent in solving the many great problems that all of you are sure to encounter in your efforts to meet the requirements of your superiors, and through them, that of the public. If this is done, I am sure there will be no danger of the requirements of this Association not being fully met, with all of you realizing that it is your duty to help and co-operate with each other. In fact, the work of the American Railroad Association will never be completed, as the railroads can never be finished, because our country, our states and our cities are never finished themselves, and it is hoped that they never will be. The very day the people anywhere think they have reached a state of perfection that very instant decay begins.

Appreciation for Chairman Purcell

The responsibilities of this Association have been and are now very great, and this should not be lost sight of. You gentlemen are setting up standards and practices of this Association for the American rail-

roads. These standards and practices are used to a greater or less extent on railroads of many nations of the world. During the ensuing year let us do all we can to help our fellow-officers give to the United States

the best our talent and ability will afford. Let us make our railroads, if possible, greater than ever before. Let us do our part so well that others will be proud to follow us, so that the professors of our great schools of knowledge will be encouraged to direct their students to join us in this great work, and may your work be so well done that the banker, lawyer and minister, as well as other great men of responsibility of our nation, will be glad to direct their sons to learn and practice the business of our great American railroads. I ask you to adopt with me the following as the ideals for this Association: "A greater Nation for its illustrious Flag, Greater Railroads for its People, with lasting Peace, for this World."

L. K. Sillcox (C. M. & St. P.): Whatever success may be given to this year's work or to what has been done during this convention, I think, is largely chargeable to the great effort made by Chairman Purcell.

It has been a year of most strenuous effort. There has been some conflict, but behind it all the chairman has had this in mind, it seems to me, that each one of us somehow and through it all has had the best interests of this Association at heart, and so long as that spirit of influence obtains we will have a healthy activity.

Considering Mr. Purcell's many duties I think it is remarkable to appreciate the amount of time he has put in for our benefit and that of the railroads.

I might only mention one thing, namely, the care which he used in picking out men to enter the discussion on papers and reports. That was a difficult mat-

ter, it seems to me, to carry out successfully, and it required a personal appeal to get men who would be willing to take the time and make the effort to discuss some of these very great questions logically and carefully and helpfully.

We cannot judge sufficiently now as to the ultimate result of Mr. Purcell's great work. His effort and his work for us will add to the heritage of our Association, and I am proud in your name and mine to present this badge of honor to Mr. Purcell.

(Whereupon Mr. Sillcox pinned the past-president's badge on Mr. Purcell while the convention arose and applauded.)

Mr. Sillcox: So that he may have a true record of our feelings, the following memorial is presented:

"Resolved: That the members of the Mechanical Division, American Railway Association, assembled in convention, in June, 1924, take this occasion to express their appreciation to John Purcell for the excellent and painstaking services he has rendered in the performances of duties imposed as chairman of the Mechanical Division and of the General Committee during the past year."

John Purcell: Gentlemen, this is an honor that I prize more highly than any that has come to me during my entire life.

Had it not been for your assistance and help I do not feel that we would have had the success at this convention that we have had, and I want to thank every member for the courtesy that was extended me during my time as chairman.

Report of the Committee on Car Construction

The committee reviews the objects of the fundamentals of design adopted by the association prior to the development of the present standard box car designs. These provided for interchangeability of trucks as a whole, and for side frames and bolsters, for a standard draft gear application and uniform strength of underframe construction. The limits of stress, bearing area, eccentricity of end load, etc., and methods developed for calculating stresses throughout the car,



W. F. Kiesel, Jr.
Chairman

will bring about uniformity of strength in parts not covered by detailed standard designs.

One of the new activities of this committee is the development of a sound theoretical basis of car framing design, a task that has been assigned to a sub-committee, of which C. R. Harding (Sou. Pac.), is chairman. This year's report contains a tentative, but not complete, report from the sub-committee. The complete report will be published later.

In June, 1923, designs of 4-C and 4-D single and double-sheathed box cars were presented. These were carefully reviewed by many who are interested in car designs. The general opinion engendered by these designs was disclosed by the suggestions and criticisms which were submitted in the past year, and which were considered by your committee. Some of these suggestions have already been adopted for introduction in the design, and others are now under investigation, with a view to adopting at least the principles disclosed by the suggestions.

In making this progress report, it is pertinent to call attention to the fact that the publishing of these proposed car designs has already had a very material beneficial effect on other car designs which have since been brought out.

The fundamentals of design, which have gradually been adopted by the association, previous to the adoption of complete standard car designs, have brought about a greater uniformity of strength, and a greater amount of interchangeability of car parts which are most likely to require repairs on foreign lines.

Standardization to Reduce Repair Costs

One of the great objects sought is to make such parts requiring repairs on foreign lines of the same detail construction, so that these parts—kept in stock by any railroad—will be applicable to cars of foreign railroads, in addition to their own.

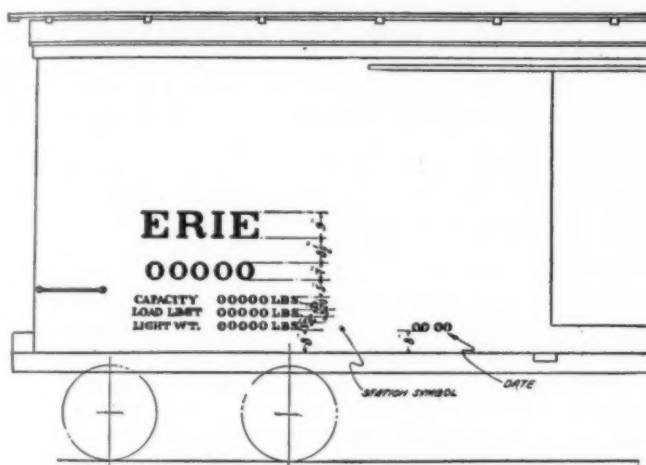
The following examples may be cited: Interchangeability of trucks, side frames and bolsters; the use of standard designs of draft gear and attachments, which will gradually work toward the crystallization of different designs of different draft gear and attachments into a minimum number of designs which include the best features of all; center sill and side sill sections, approved in connection with the standard cars adopted in 1923, which may be utilized by the railroad companies in working out detailed designs of their own, producing uniform strength and ease of repairs, even though they do not elect to follow the standard design throughout. The detailed design of box car already adopted provides standard dimensions for roofs and ends, which can be util-

ized in working out cars according to the railroad companies' own designs. The adopted limits of stress, bearing area, eccentricity of end load, etc., together with the methods of calculating stresses throughout the car (the latter included in this year's report) will bring about uniformity of strength in parts not covered by detailed standard designs.

Center sills of the proposed section have now been successfully rolled, and are being utilized in the construction of a relatively large order of house cars. The proposed side sills were deemed somewhat too thin in section, by the steel mill, which agreed to roll them provided the thickness throughout was increased by about $\frac{1}{16}$ in. The railroad ordering these sills agreed that this increase in thickness would be acceptable for their order of cars.

With the co-operation obtained in the rolling of these sills, your committee proposes to go over this again with representatives of the mill, so that it can be determined what changes in the proposed sections are essential for final standardization.

It is realized that there are in existence many thousands of cars of satisfactory design, and that there will be no particular disadvantage if such designs, or parts of them, are perpetuated on future cars, provided that details which are known to be weak, and not in accordance with present standards of strength, are replaced by parts conforming to the standard designs, as far as possible. However, it is self-evident that a design practically as good as the best now running, if universally adopted, will materially reduce repair cost on all railroads. The length of time within



Proposed Method of Stenciling Cars to Show Load Limit

which this benefit will be apparent depends entirely on the extent to which the members of the association follow the adopted standards and recommended practice.

As many requests have been received for a double-sheathed car with wooden sheathing and wooden lining, a sub-committee is now at work on such design, which will embody, as far as possible, detail construction of the designs submitted in 1923.

A design of 40-ton and 50-ton double sheathed wood box car is now well advanced on the schedule of the committee. This design will employ a steel underframe, similar—if not identical—with that used on the single sheathed car, as well as the same roof, side door, trucks, brake rigging, draft rigging, and other details. The design embraces the use of a continuous steel side truss of the Howe or Pratt type, and will offer an alternative to such railroads desiring either type of construction. We expect to be able to have this new design before you in 1925.

Minor Recommendations

The recommendations by your committee, on questions of minor import, referred to them, follow:

It is recommended that, in stenciling on sides of cars, fractions be omitted, using the next lower inch for inside dimensions, and the next higher inch for other dimensions. It is also recommended that abbreviations be used in stenciling, wherever possible, and that a list of standard abbreviations be evolved. It is recommended that, for stenciling cars to show load limit, the legend be arranged as illustrated.

It is recommended that the handbrake power, on all new and rebuilt cars, shall not be less than 60 per cent of the light weight of the car based on 1,600 lb. pull, on a $\frac{1}{16}$ -in. brake chain, passing onto a $1\frac{1}{2}$ -in. drum, forming part of a brake staff equipped with a 16-in. handwheel, or its equivalent.

Requests for consideration of improvements in the general practice of car design are received from time to time. These will be

given consideration by your committee, when they make designs for cars, to which such improvements apply.

To make them available for others not connected with this committee, but who practice car design, it has been decided to record in our annual report all suggestions that are held in abeyance.

The following have been received in the past year. The chief mechanical engineer of the Erie called attention to the advisability of making the clear width between sides, near ends, of drop-end gondola cars, as wide as possible, consistent with the strength of the corner post. H. A. Simms, mechanical superintendent, American Railway Express Company, recommended standardization of hatch and bevels on future refrigerator cars. A sub-committee has been appointed to work on this subject.

In conference on loading rules, the steel shippers offered the following recommendations, in connection with new cars; First—All drop-end gondola cars to be equipped with end gates that are easily removed and replaced (pin and cotter type hinge). With drop-end gates secured to the car permanently (and laying flat on the floor) the shippers have difficulty in getting the required 4-in. clearance between end-gate and lading on twin and triple shipments; Second—All flat and drop-end gondola cars to be equipped with drop-down type brake staff; Third—Allow greatest possible distance between end-gate stops on drop-end gondola cars.

L. K. Sillcox, general superintendent motive power, Chicago, Milwaukee & St. Paul, calls attention to the fact that dressed lumber, as manufactured, is less in width than A. R. A. specifications, namely, 6-in. rough lumber is finished to $5\frac{1}{8}$ -in. face width, instead of $5\frac{1}{4}$ -in., etc. A sub-committee is making an investigation.

George T. Johnson, of the Buckeye Steel Castings Company, furnished prints to illustrate his suggested modification in ends of center sills, and castings attached thereto, to provide greater interchangeability. The Sub-Committee on Design is considering this.

J. S. Neary, master car builder, Chicago, Indianapolis & Louisville, called attention to the fact that, several years ago, a recommendation was made by the Committee on Car Construction to apply end stake pockets, to facilitate loading of stone, to all new flat cars. He calls attention to the fact that very few railroads have followed this recommendation, and sent sketch to illustrate a method of applying end stakes. The sketch indicates two transverse channels, spaced 5-in. apart, attached to center sill and side sill with channel-shaped straps, $\frac{1}{2}$ in. apart, therebetween, thereby making two pockets on each side of the center sills of the car, sufficient for $4\frac{1}{2}$ -in. by 5-in. stakes. One of these stake pockets is located 15 in. from the longitudinal center line of car, and the other 45 in. from that center line. This provides two stake pockets on each side of the center sills, at each end of the car.

Basic Assumptions and Method of Calculating Stresses

Very little has yet been published as a guide to theoretical bases for car designs. To cover this deficiency for car framing, a sub-committee, consisting of C. R. Harding (chairman), P. W. Kiefer, L. K. Sillcox and A. H. Feters, was requested to investigate the methods now used, and develop a method that would give best results. This sub-committee has submitted a most valuable and exhaustive report, which, however, was received too late for discussion by the Committee on Car Construction. A tentative report from this sub-committee is printed as exhibit A to this report. As soon as possible a complete report from this sub-committee will be published in order to bring out constructive criticisms and suggestions from those interested and experienced in car design.

The report is signed by W. F. Kiesel, Jr. (chairman), mechanical engineer, Pennsylvania System; A. R. Ayers, assistant general manager, New York, Chicago & St. Louis; O. S. Jackson, superintendent motive power and machinery, Union Pacific; J. C. Fritts, master car builder, Delaware, Lackawanna & Western; C. L. Meister, mechanical engineer, Atlantic Coast Line; J. McMullen, superintendent car department, Erie; S. O. Taylor, master car builder, Missouri Pacific; L. K. Sillcox, general superintendent motive power, Chicago, Milwaukee & St. Paul; J. Purcell, assistant to vice-president, Atchison, Topeka & Santa Fe; W. O. Moody, mechanical engineer, Illinois Central; F. W. Mahl, director purchases, Southern Pacific; G. S. Goodwin, mechanical engineer, Chicago, Rock Island & Pacific; F. H. Hardin, chief engineer motive power and rolling stock, New York Central; J. J. Tatum, superintendent car department, Baltimore & Ohio; W. A. Newman, mechanical engineer, Canadian Pacific, and R. H. Dyer, general car inspector, Norfolk & Western.

Tentative Report of Sub-Committee

LOADS

Floor Plank shall be designed to carry the following loads: (a) weight of floor plank; (b) weight of lading uniformly distributed; (c) to provide for trucking loads, each floor plank shall be capable of sustaining a concentrated load of 300 lb. placed anywhere and the calculated unit stress for this load plus the dead weight of the plank, considering the floor plank as continuous over its supports, shall not exceed the allowable

stress for wood prescribed herein. The uniformly distributed lading shall not be combined with this concentrated load.

Center Sills shall be designed to withstand: (a) reaction of floor plank; (b) weight of center sill and attachments; (c) end load of 250,000 lb.

Crossbearers shall be designed to carry: (a) weight of crossbearer; (b) reaction from center sill—center sill considered as a continuous beam from end to end, unyielding supports at ends, bolsters and crossbearers.

Bolsters shall be designed to carry the following loads: (a) weight of bolster and attachments; (b) total reactions from side trusses.

Side Truss Members shall be designed to withstand the following loads: (a) direct stresses; (b) stress due to eccentricity of load application, compression members only; (c) bulging due to a full load of wheat; (d) centrifugal force equal to five per cent. of the bulging force; (e) longitudinal shifting of lading shall be provided for by applying a load of 200,000 lb. against the inside of the end of the car at a distance of 42 ins. above the center line of draft.

UNIT STRESSES

Structural Steel:

Tension 16,000 lb. per sq. in.

Compression 16,000 lb. per sq. in.

for short columns.

For long columns, this unit stress shall be reduced by the Rankine formula, fixed ends.

$$\frac{P}{A} = \frac{16,000}{1 + \frac{1}{25,000} \left(\frac{l^2}{r^2} \right)}$$

where,

P=the direct compressive stress in lb.,

A=area of section in sq. in.,

l=length of column in in.,

r=least radius of gyration in in.

Shear 12,800 lb. per sq. in.

Rivets: Shear, 10,000 lb. per sq. in. Bearing, 20,000 lb. per sq. in.

Wood: Tension in bending, 600 lb. per sq. in.

Combined Stresses—For the combination of loads listed under "Crossbearers" and "Bolsters" the allowable unit stresses shall be decreased 25 per cent. For the combination of loads on side truss members the allowable unit stresses shall be modified as follows: 1—For direct stress, plus eccentricity, plus bulging, plus centrifugal force, increase unit stresses 25 per cent.; 2—For direct stress, plus eccentricity, plus centrifugal force, plus longitudinal shifting of load, increase unit stresses 25 per cent. Bulging stress and stress due to longitudinal shifting of load should not be combined as they are not likely to be maximum simultaneously.

DETAILS OF DESIGN

Floor Plank—Floor planks shall be considered as continuous beams. The reactions are thus determined on side sills, center sill, and, when present, intermediate stringers.

Center Sills—The center sill shall be calculated as a continuous beam from end to end. For this purpose the points of assumed unyielding support shall be the ends, bolsters and crossbearers.

The end load shall be considered as applied on the back stop at the center line of draft. The unit stress due to end load shall be computed by the standard A. R. A. method and shall be combined with the unit stresses due to vertical load.

Crossbearers and Bolsters—Only the cover plates of crossbearers and bolsters shall be considered as effective in resisting bending moment.

Side Truss Members—The bending moment at the center of a column due to eccentricity shall be the direct stress multiplied by the average eccentricity.

Bulging stresses shall be computed for a limit load of wheat. The total bulging force shall be computed by the Rankine formula:

$$P = \frac{1}{2} wh^2 \frac{1 - \sin \phi}{1 + \sin \phi}$$

where,

P=total bulging force per ft. of length,

W=weight per cu. ft. taken at 49 lb.,

h=depth of grain in ft.,

φ=angle of repose 25 deg.

This force shall be distributed vertically so as to be zero at the surface of the wheat and to increase uniformly to a maximum at the floor line. The side members in resisting bulging shall be considered as fixed end beams.

GENERAL

Fixed Ends—As these specifications are based on fixed end conditions of side truss members, both as beams and as columns, the riveted connections of such members should be detailed so that their ends are substantially fixed.

Riveting—The rivet spacing in the center sill, crossbearers and bolsters shall not be more than six inches nor more than 16 times the thickness of the thinnest plate connected nor less than three times the diameter of the rivets. No rivet hole shall be closer to the edge of a plate than 1½ times the nominal diameter of the rivet, measured from the center line of the rivet. Members or parts of members in tension shall have rivet holes deducted, and these shall be assumed as 1/16-in. larger than the undriven rivet. The rivet spacing in cover plates of cross bearers, bolsters and center sills shall in no case be more than would develop the full value of the shear stress at any point within a distance equal to the depth of the member.

Discussion

J. Coleman (C. N. R.): I would like to ask for information relative to the stenciling of the capacity shown in Fig. 1. This shows "capacity," "load limit," and "light weight." Is that repetition? The load limit is the load capacity, is it not?

Mr. Kiesel: That is merely an interpretation of what we were requested to do. This represents a location of the lettering. We were requested to show capacity, load limit and light weight. Capacity is supposed to be the nominal capacity; for instance, 100,000 lb. capacity, but a

car that weighs 40,000 lb., the load limit would be 129,000 lb., so it would be marked: "Capacity 100,000 lb.; load limit, 129,000 lb., and light weight, 40,000 lb." We had nothing to do with maintaining those three weights. We simply show here how they should be applied to a car.

S. O. Taylor (M. P.): Coincident with the introduction of the designs of the 4/C and 4/D single and double sheathed box cars a multiplicity of divergent, but constructive criticism was advanced, which precluded the adoption of the designs as submitted, and resulted in their return to the Committee Car Construction for the purpose of harmonizing the conflicting opinion that prevailed in order to obtain an affirmative vote. With this object in view, the committee has assiduously devoted much time and thought to the designs previously presented in addition to the study of subsequent recommendations—in an effort to dispel the criticism offered, but despite these efforts there still exists a division of opinion.

Apparently the principal difficulty in this respect has resolved itself into the fundamental of the inside width which has been a source of debate since the inception of the consideration of the standard box car. You are aware of the approval obtained by the Car Construction Committee in 1920 of the standard inside width of 8 ft. 6 in. for box cars, along which lines the committee has attempted to develop the standard car as it is obvious that these dimensions must be adhered to until changed in the manner they were formulated; that is, by letter ballot. This necessarily results in the provision of two different roof for the two types of cars, instead of the standard roof as contemplated by the designs originally submitted, and which indicated that the steel-sheathed, or so termed double-sheathed car, was to be 8 ft. 9½ in. inside width so that the roof could be made interchangeable on all designs, and which would insure the maximum standardization. Moreover, it has been inferred that in the event inside dimensions are changed by letter ballot, thereby permitting additional inside width in a steel-sheathed car, due to its construction requiring less space than exists in a car of wooden construction, there would be a propensity, from a traffic viewpoint, to discriminate in the selection of cars with the added width. I do not consider such a deterrent would ensue and believing that the dimensions should be changed, I am sincerely in accord with the resolution to ascertain by letter ballot the choice of the members on inside dimensions of box cars, which would satisfactorily clarify this phase of construction.

The remaining principal points of difference come within the scope of the following:

Trucks—The merits of the design of side frame as originally submitted have not been determined in actual service, but it has been disclosed that the frame does embrace features which have been employed and deserve recognition. Its adoption, however, is optional as the provision has been made that any truck of proper capacity conforming to the A. R. A. standard dimensions may be used as an alternate.

Permissible Alternates—These variations include the substitution of the Howe truss for the Pratt truss and vice versa, which details have hereto been the subject of considerable discussion. Many other desirable substitutions have been permitted in this regard, all of which have been previously directed to your attention.

Strength of Design. Improvements have been accomplished by increasing the thickness of "U" shaped posts and braces of the side trusses from 3-16 in. to ¼ in. and the addition of crossbearers on 40-ton cars. Other discussed stress members of the 40- and 50-ton single-sheathed and double-sheathed cars were accorded careful consideration by your committee and it was determined that no changes in this respect were warranted.

Doors. With the increase in length of the hook lap at edge of door ample protection has been provided against the elements. The amendment was also made that a door of the bottom supported type may be used as an alternate if conforming to general dimensions.

Center Sill Design. The report in this respect is self-explanatory and requires no comment.

Numerous other objections of varied importance have been definitely overcome, and gradual progress has been made toward the consummation of acceptable designs of the 4/C and 4/D single- and double-sheathed box cars. The report defines the beneficial results derived by the partial adoption of the fundamentals of design, and it is confidently expected that the decisive and concerted efforts of the members will be exerted to expedite the acceptance of the complete standard cars, the urgent need of which there is not the remotest doubt.

In addition to greater uniformity of strength and construction, the interchangeability of repair parts of the same detail construction readily admits of prompt repairs, especially to cars of foreign roads, and obviates the necessity of frequently holding such equipment until material can be procured from owners, as is now the case, with resultant delay and expense. It is also evident that a stock of standardized material is more economically maintained than one that is diversified. And then there are existing issues, of which you are cognizant, that are constantly taking more definite form, and it certainly behooves this membership to give their acquiescence to the standard cars. Undoubtedly, sufficient time has elapsed to permit of due deliberation of both the 4/C and 4/D types and the various miscellaneous details involved. This being true, and the need of such cars generally realized, then appropriate steps should be taken at this time to surmount any obstacles that still exist in regard to the adoption of the complete designs.

Your committee is engaged on designs for a double-sheathed car with wooden-sheathing and wooden-lining, and appreciable progress is being made in this particular. The design includes detail construction analogous to the designs presented in 1923, and provides a steel under-frame, which will evidently be the same as that used on the single-sheathed car. The various other details stipulated in report; such as, roof, side door, trucks, brake rigging, draft gear, etc., will also be in accordance with previous designs. Check made of drawings and exhibits submitted in connection with this latter type of car have brought about numerous suggestion and objections, but fortunately all of these are of more or less negligible import and can be readily reconciled.

The recommendations made by your committee on the several minor questions referred to them, consisting of omissions of fractions in stenciling on sides of cars, abbreviations to be used in stenciling, and change in stenciling of weight legend, were made with the idea that such change would prove to be advantageous.

In regards to requests for consideration of improvements, these are to be given consideration when occasion demands.

In my estimation, the suggestion that clear widths between sides, near ends, of drop end gondola cars, be made as wide as possible, is deserving of favorable consideration.

The standardization of hatch and bevels on future refrigerator cars, as proposed, invites consideration from several angles. The merits of this request and the feasibility of standardization of these details will be determined in due time by the sub-committee assigned to this subject.

In connection with the conference on loading rules and the several recommendations offered by the steel shippers relative to new gondola cars. While it may be true that the shippers experience some difficulty in obtaining the necessary 4-in. clearance between end gate and lading on twin and triple shipments, the railroads would, at the same time, encounter no end of trouble with misplaced or lost end gates in the event these gates were removable instead of being permanently secured to the car, as it is obvious that gates would be frequently omitted, or insecurely fastened when replaced in car.

It is, of course, desirable to the shipper to allow as much space as possible between end gate stops on drop-end gondolas, and there is no sustained objection that I know of to such a procedure.

The advantages of drop type brake staffs on flat and drop-end gondola cars are self-evident, it being particularly evident that the maintenance of such equipment on the types of cars referred to is more economically accomplished than with the ordinary type of brake staff.

Concerning omission of end stake pockets from flat cars, which were recommended to facilitate loading of stone. It is true that these stake pockets have not been universally applied, and, in my opinion, I do not believe such a practice is warranted, especially when one considers the expense incurred in equipping all flat cars in this manner, and the relatively small number of cars actually required for the purpose designated. Furthermore, the loading of such shipments of stone is in the majority of instances accomplished independent of the end stake pockets.

In commenting on basic assumptions and methods of calculating stresses, your committee has assured you that while little has yet been published as a criterion to theoretical basis for car designs, a comprehensive report has been submitted on this subject by the sub-committee, which will soon be available. This tentative report on "Fundamentals of Design Specifications for the Design of Box Cars" is a valuable contribution, and the sub-committee is to be commended for their efforts, particularly in regard to the accuracy and completeness of the stresses shown.

Chairman Tatum: The Pennsylvania has done good work. They have had five cars sent down so that we might draw a conclusion as to just about how the standard cars will look and what their construction will be.

Dr. W. F. M. Goss: I have the highest admiration for the work of this committee. I shall not presume to discuss the technical aspects of its report. Its work has been long continued and its patience and devotion have brought them well on the road to a full solution of the problem. It is perfectly clear that the standard box car is actually at hand. I congratulate the members of this committee on their achievements.

W. E. Dunham (C. & N. W.): I have given the standard car a great deal of study. For new equipment, the standard car as proposed by the committee is without doubt a shining mark for us to follow. It has given us also the fundamentals which we can follow in rehabilitating a large share of the equipment which we now have in service.

A. H. Feters (U. P.): This year marks an epoch in the history of the A. R. A. in that we will present to the railroads of the country a standardized box car. It means a great deal, more perhaps than we can comprehend at this time. The economic gain from this will only be seen in the next ten, fifteen or twenty years. This is a remarkable thing because it is the first successful attempt at a standard car after several honest but unsuccessful efforts in the past. This car is a good design. There will be adjustments to make; alterations, changes here and there from year to year as we grow. About

the only thing that appears to be open for argument at present is to harmonize the question of width, and in that respect I hope this problem will be solved if possible on the merits of the mechanical design, because it would be a great shame if we are compelled to carry around two or three hundred pounds of extra weight in order simply to tell the traffic people that we have got a car that is 8 ft. 6 in. wide. A double sheath of wood design can be opened up from the proposed 8 ft. 6 in. to 8 ft. 7 $\frac{3}{4}$ in. By so doing we will save between 200 and 300 lb., and at the same time get the greater volume for the car.

R. L. Kleine (Penna.): There is little left to say on the work the Car Construction Committee has done. One of the main questions involved between the single-sheathed wooden car and the double-sheathed outside-steel car was the inside dimension. That question has been referred to the Executive Committee of the presidents, and they wisely decided that the Mechanical Division should lay aside all questions of traffic involved in the two widths and return the matter to the Mechanical Division to give a report on the engineering principles involved, laying aside the traffic question. The General Committee of the Mechanical Division on June 10, prior to the convention, has returned that to the executives and recommended a minimum inside dimension of 8 ft. 6 in. That will permit the steel-sheathed box car to be designed with an inside width of 8 ft. 9 $\frac{1}{4}$ in., and the double-sheathed wooden car, which the committee is undertaking to design this year, with an inside width of 8 ft. 7 $\frac{3}{4}$ in., thus giving a standard roof for all three cars.

Insofar as the special center sill section is concerned,

which consists of an I-beam top section and a channel bottom section and also the special side sill channel section, there was some misgiving when that section was submitted to the rolling mills, but there are two mills now rolling both sections. One rolling mill has completed sufficient sills and side sills for 12,000 cars, and they did not experience as much difficulty in rolling the section as they had anticipated. It required some special arrangements for the straightening of the section. In other words, for a regular I-beam section they make about eight passes on the finishing rolls and this section, so far, requires 15 passes, but they rolled as high as 420 sections in one day, so that problem is solved.

C. E. Chambers (C. N. J.): I move the report be accepted and the question be submitted to letter ballot.

Mr. Kleine: Before the weight markings are submitted to letter ballot it will be essential to have a conference with the Transportation and Traffic Section. That question has been in abeyance for some time. The difficulty experienced in the past was to show in the Railway Equipment Register the weight markings if we go to the load limit weights, but since the recommendation is to show both the capacity and the load limit weight, that difficulty will be overcome. No change will be required for the Railway Equipment Register as the cars can still be shown under capacity, but I do believe that it will be necessary to submit it to letter ballot and I would amend Mr. Chambers' motion to the effect that the load limit weights be first submitted to the Transportation and Traffic Section and then submitted to letter ballot.

(The motion as amended was seconded and carried.)

Report on Specifications and Tests For Materials

The work of the sub-committees upon the subjects assigned to them is progressing slowly, and a full report will be made at the next convention of the association. The specifications for lumber have not been revised since their adoption in 1910. Due to the change of conditions in the lumber field, it was decided to obtain an expression of opinion from the various lumber associations as to what should be considered satisfactory specifications for lumber. It



F. M. Waring
Chairman

was felt that recommendations for new lumber specifications would be made at the next meeting of the association.

A new proposed form for the specifications for welding wire and rods was recommended, also a change in the A. R. A. monogram for air hose and a change in the drop tests for coupler knuckle pivot pins. The committee solicited criticisms or suggestions for new specifications from members of the association.

Sub-committees have been continued on the following subjects: (a) Mechanical Rubber Goods; (b) Water Gage and Lubricator Glass; (c) Steel Sheets for Passenger Equipment; (d) Paints; (e) Specifications for Welding Wire.

Report to the Association in 1923

In the 1923 report was given a new Recommended Practice Specification for glasses reflex type water gages. As a result of experience during the past year, it is the conclusion that some modification should be made in Section 4—Dipping Test, as it appears that the requirements are unnecessarily severe. Accordingly, the Committee has communicated with the Secretary of the Association and requested that arrangements be made to withhold these specifications from publication pending revision.

The specifications for tubes, boiler, lap-welded charcoal iron

for locomotives, Section 13, Workmanship, contained a paragraph on gage tolerance that as inadvertently omitted when these specifications were reprinted for distribution to the members as part of the Manual. Such copies as have been issued should be corrected by the insertion of a paragraph 13 (c), reading as follows: "Finished tubes shall not, at any place, exceed the specified thickness by more than three gages." Subsequent paragraphs (c) and (d), should be changed to (d) and (e). The Secretary has been notified of the above omission and requested to arrange for correction in further printing of the specifications.

Specifications for Lumber

The specifications for Lumber now shown in the Manual were adopted in 1910, and have not since been revised. Conditions of supply have changed so much since these specifications were put out

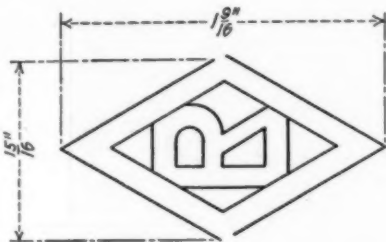
that it is questionable whether they now serve any useful purpose. The committee discussed the matter and, on motion it was voted that the Secretary of the Association be asked to circularize the members with a view to obtaining an expression of opinion from them on the value of the present Lumber Specifications and if, as a result, it is found that the members are not making any use of the specifications they should be withdrawn from the Manual.

The committee has no satisfactory specifications for lumber to recommend in place of the present specifications, but is endeavoring to keep in touch with the development of the subject as it is being handled by the various lumber associations, and expects to be able to make recommendations at a later date.

Recommendations

SPECIFICATIONS FOR AIR BRAKE AND SIGNAL HOSE

It is recommended that the A. R. A. monogram shown on the label, Fig. 2, be changed as shown in Exhibit A. The long axis of the diamond is to be horizontal instead of vertical; the horizontal over-all dimensions to be $1\frac{9}{16}$ in. and the vertical dimension $1\frac{5}{16}$ in. The reason for this proposed change is that the monogram as now placed on the label is somewhat too small, and the proposed change will enlarge the size.



Proposed Monogram for Air Brake and Signal Hose

SPECIFICATIONS FOR COUPLER KNUCKLE PIVOT PINS

To be revised by changing section 6, Drop Test, to read as follows:

6. *Drop Tests.*—This test shall be made on a standard A. R. A. drop-test machine, or drop-test machine that will give equivalent results, the pin resting on rounded supports held rigidly 10 in. center to center. If made on a standard A. R. A. drop-test machine, the pin shall be subjected to one blow by a 1640-lb. tup dropping from a height of 3 ft., or a 2240-lb. tup dropping from a height of $2\frac{3}{4}$ ft. The pin shall show a deflection of not less than 15 deg. or more than 30 deg. without cracking or breaking.

SPECIFICATIONS FOR WELDING WIRE

These specifications have been drawn up to cover the usual grades of welding wire for electric and gas autogenous welding, and were prepared in cooperation with representatives of the American Welding Society. No attempt has been made to cover special compositions of wires used for certain special purposes, as it was felt that these special grades of wire might not be applicable to a great many general purposes and would cause confusion among users if included in a general specification. The members are requested to give the Committee the benefit of any criticisms or suggestions they may have for the improvement of these specifications.

The Committee recommends that the above revisions of standards and the new specification be submitted to letter ballot of the association.

The report is signed by F. M. Waring (Chairman), Pennsylvania System; J. R. Onderdonk, Baltimore & Ohio; Frank Zeleny, Chicago, Burlington & Quincy; A. H. Feters, Union Pacific; H. G. Burnham, Northern Pacific; J. C. Ramage, Southern; J. H. Gibboney, Norfolk & Western; T. D. Sedwick, Chicago, Rock Island & Pacific; G. N. Prentiss, Chicago, Milwaukee & St. Paul; G. E. Doke, New York Central; H. D. Browne, Chicago & North-western; and F. T. Quinlan (N. Y. N. H. & H.).

Proposed Specifications for Welding Wire and Rods

1. *Scope.*—This specification covers six classes of material as follows:

- A. or B. Wire for gas or electric welding of wrought iron, and cast or wrought steel.
- C. Cast iron welding rods for gas welding of grey cast iron.
- D. Brass welding rods for gas welding of miscellaneous brass and grey cast iron parts.
- E. or F. Aluminum welding rods for gas welding all parts made of aluminum.

2. *Physical Properties.*—All wire and rods shall be commercially straight, of uniform homogeneous structure, and shall be free from oxides, silvers, seams, and all other injurious physical defects. Class A shall be furnished annealed or unannealed as specified on the order.

3. *Chemical Composition.*—Welding wire and rods shall conform to the following chemical composition:

	CLASS A	CLASS B	CLASS C
Carbon	0.06 Max.	0.13—0.18 Max.	3.00 Min.
Manganese	0.15 Max.	0.40—0.60 Max.	0.50—0.75
Phosphorus	0.04 Max.	0.04 Max.	0.50—0.70
Sulphur	0.04 Max.	0.04 Max.	0.10 Max.
Silicon	0.08 Max.	0.06 Max.	2.90 Min.
	CLASS D	CLASS E	CLASS F
Copper	60—70	—	8.00
Zinc	30—40	—	—
Lead	—	—	—
Aluminum	—	99.00 Min.	92.00
Iron	0.06 Max.	—	—
Total other elements and impurities	0.50 Max.	1.00 Max.	—

4. *Welding Test.*—Welding wire and rods shall render satisfactory welding properties and shall flow smoothly and evenly without unusual characteristics when used by a competent operator upon the class of work for which it is intended.

5. *Samples for Chemical Analysis.*—From each class of material ordered upon every shipment, one sample for chemical analysis shall be taken, representative of each lot of 1000 pieces or less, when cut to length, or of each five coils of uncut wire. This analysis shall in each case conform to the requirements of Section 3.

6. *Dimensions and Tolerances.*—Welding wire and rods shall conform closely to the dimensions specified upon orders. Drawn wires shall not vary more than 3 per cent from the diameter specified. Cast rods shall not vary more than 10 per cent from the diameter specified. All electrodes shall be furnished in 14-inch lengths; and drawn wire for gas welding in 36 inch lengths unless otherwise specified. Cast rods shall be furnished in lengths of not less than 12 inches.

7. *Workmanship and Finish.*—Welding wire and rods shall have a smooth clean, surface, free from rust and scale, and shall not carry more than a slight trace of oil or grease.

8. *Packing and Marking.*—Rods, and welding wire cut to length, shall be securely tied at both ends with wire and wrapped in heavy weather proof paper or burlap for shipment in bundles of 50 pounds net weight. If the manufacturer desires, the wire and rods may be packed in suitable boxes or kegs of 100 or 200 pounds net weight. Wire ordered in coils shall be furnished in coils of approximately 50 pounds net weight, unless otherwise specified. Each bundle of rods or wire cut to length, and each coil of work, shall be provided with a linen or metal tag, securely wired on, showing the manufacturer, the letters A. R. A. and the class of wire, the diameter and nominal weight.

9. *Inspection.*—Welding wire and rods will be inspected at destination or at the manufacturer's works, as the purchaser may elect. The inspector representing the purchaser shall have free entry at all time while work on the contract of the purchaser is being performed, to all parts of the manufacturer's works which concern the manufacture of the material ordered. The manufacturer shall afford the inspector free of charge, all reasonable facilities to satisfy him that the material is being furnished in accordance with the specification.

10. *Rejection.*—Material represented by samples which fail to conform to the requirements of these specifications will be rejected.

11. *Rehearing.*—Samples tested in accordance with this specification, which represent rejected material, shall be preserved for fourteen days from date of test report.

(The report was accepted and referred to a letter ballot.)

R. S. M. A. Committees

LEROY S. WRIGHT, the newly-elected president of the Railway Supply Manufacturers' Association, in whose jurisdiction is the appointment of committees to serve during his term of office, announces that he will not make such appointments until he has considered the available material carefully. He intends to look over the whole field as to availability and capability, and appointments will be announced at a later date.

Registration Figures

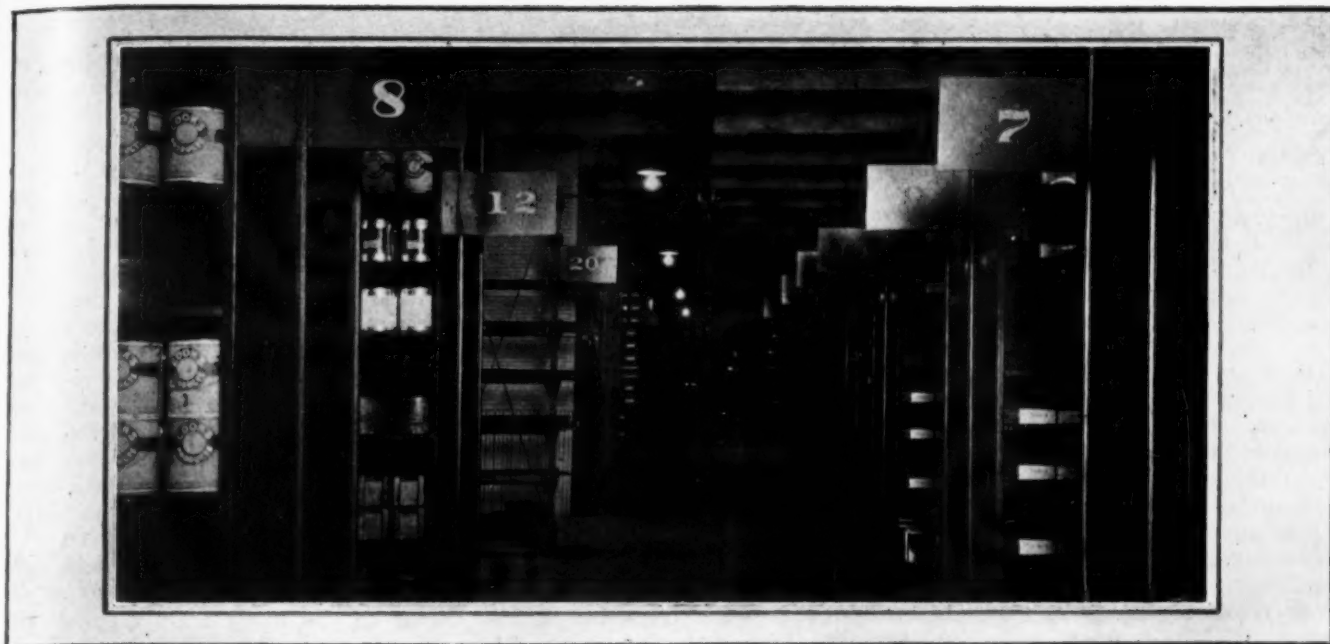
THE REGISTRATION figures compiled for the Fourth Official List, show a total of 6678, which is 424 greater than the final registration of any previous year. What the final figure this year will be remains to be seen, but it is evident that as far as attendance is concerned, the convention is the greatest ever held. Railway men have passed the 1100 mark, which puts them about 200 ahead of any previous year. Below are given comparative figures:

	1919	1920	1922	1924
Members, Mechanical, A. R. A.	675	805	950	1143
Members, Purchases and Stores	406	406	333	365
Special guests	1278	687	800	899
Supply men	2300	2465	2285	2613
Railroad ladies	875	746	924	1075
Supply ladies	470	660	569	673
Totals	5598	5769	5861	6678



Enrollment Committee and Mascot

Bottom row, left to right: H. V. McKedy, Patterson, Sargent Company; J. E. Brown, O'Malley-Bear Valve Company; F. E. Dodson, United States Rubber Company; Franklin H. Smith (chairman), Gold Car Heating & Lighting Company; S. Inglis Leslie, The Leslie Company; W. R. Van Steenburgh, The Okonite Company.
 Second row, left to right: H. L. Burrhus, Hennessey Lubricator Company; H. K. Williams, Safety Car Heating & Lighting Company; G. A. Barden, King Pneumatic Tool Company; F. C. Koch, Railway Age; F. L. Johnson, Pressed Steel Car Company; E. A. Bedell, B. F. Goodrich Rubber Company.
 Third row, left to right: P. B. Miller, Walworth Manufacturing Company; R. A. Holme, MacRae's Blue Book; C. L. Bates, Railway Review.
 Top row, left to right: J. M. Rutherford, Railway Age; Arthur Haller, American Locomotive Company; C. H. Gertner, Railway Review; T. F. Sheridan, Chief Clerk to Superintendent Motive Power, Pittsburgh & Lake Erie Railroad.
 Missing members: Edward Wray, Purchases and Stores; A. B. Edge, Detroit Graphite Company.
 Mascot: Miss Marie McHale.



A Storehouse on the Midland Valley

Division VI—Purchases and Stores—A. R. A.

First Lesson Includes a Number of Interesting Addresses and Important Reports and Papers

THE FIFTH annual meeting of Division VI, Purchases and Stores, American Railway Association, convened at 9:00 a.m. at Haddon Hall with Chairman U. K. Hall presiding. The opening of the meeting was followed by remarks by J. H. Waterman, superintendent of timber preservation, Chicago, Burlington & Quincy, and addresses by R. H. Aishton, president of the American Railway Association, W. G. Besler, first vice-president of the A. R. A. and president of the Central of New Jersey; Col. H. C. Smither, Chief co-ordinator,

Bureau of the Budget; and Chairman Hall. The following committees were appointed:

Resolutions—J. G. Stuart, general storekeeper, C. B. & Q.; C. B. Tobey, general storekeeper, Lehigh Valley; George E. Scott, purchasing agent M. K. & T.

Memorials—W. F. Jones, general storekeeper, New York Central, Lines East; J. H. Beggs, purchasing agent, C. & E. I.; and W. P. Dittoe, purchasing agent N. Y. C. & St. L.

Remarks by J. H. Waterman

On February 16, 1924, in the Auditorium Hotel, Chicago, a little group of 14 general storekeepers met in response to a call sent out by J. P. Murphy, then general storekeeper of the Lake Shore & Michigan Southern. The nucleus of what is now Division 6 was formed at this meeting, a name Railway Storekeepers' Association, adopted, officials elected, with J. P. Murphy as president, the first actual business meeting being held on May 23 and 24 of that year. The history of the Railway Storekeepers' Association, yes, I will go further and say the history of the Storekeepers and the Storekeepers' Organization of the railroads of this country, cannot be written without inserting Mr. Murphy's name. Mr. Murphy had high ideals. He had a vision and that vision insured the future possibilities of the Railway Storekeepers' Association and now Division VI of the American Railway Association.

From among the men that were early members of the Railway Storekeepers' Association there have gone out

Superintendents, General Managers, Assistants to Vice-Presidents and Vice-Presidents.

What service has the Railway Storekeepers' Association accomplished? It has revolutionized railway storekeeping and secured the recognition which we rightly enjoy today. There is no organization or section in the American Railway Association that has done more or as much for the railroads of this country as the Railway Storekeepers' Association now known as Division VI. A few years ago roads that did not know what a store department was now have a well organized and efficient store department.

Before leaving the past let me just state some of the things that the Railway Storekeepers' Association has stood for and accomplished:

Standard Stock Book.
Master Stock Book.
Standard Book of Rules—setting forth the best elementary methods of
Railway Storekeeping.
Standard Price Book.
Standard Scrap Classification.

Standard Material Classification.
 Standard Uniform Basis of Figuring Stock Consumption.
 Standardization of Tinware.
 Uniform Grading and Inspection of Lumber.
 General Accounting Procedure.
 Railway Supply Car.
 Supply Train Operation and Line Delivery of Material.
 Modern Storehouse Buildings.
 Standard Reclamation Practices.
 Store Delivery of Material to Users.
 Standard Organization Chart.
 Handling of Stationery.
 Handling and Distribution of Rail.
 Handling of Cross Ties.
 Piece Work Schedules.
 Modern Oil House.

These are a few of the important achievements of the past twenty years.

Before I leave the past I wonder how many of you remember that at our convention in 1923, Mr. Aishton, the president of the American Railway Association, stood up before this organization and said: "Gentlemen, the executive officers of your association have signed a note, a promissory note, and we have agreed to do certain things. We want you to back us. Will you do it?"

You remember how this association responded to the request of Mr. Aishton and you remember how we made it possible for them to pay the note, the promissory note, when it was due?

The motto of the original Railway Storekeepers' Association was: "Loyalty, Service, Efficiency and Hard Work." This should be our motto and with this motto we can accomplish greater things in the future than have been accomplished in the past.

It is only a few years ago when the members of this department were not recognized as associates with the officers of the other departments but today on many and all railroads where there is an efficient store department, the head of the store department is recognized as one of the most important staff officers of the operating head of the railroad of which he is a member.

Now to give service, the first thing we must do is to be careful in selecting our men, cleancut, straightforward, earnest, aggressive, efficient hard workers.

What of the future? It is only he who has a vision that can dream or rather foresee what the future of this organization may do. When I speak of the organiza-

tion I mean not only as Division VI, but I mean the purchases and stores organization of the various railroads in this country. The possibilities are unlimited. Railway storekeeping is handled on a more scientific basis today than it ever was handled and we have just started. What we may accomplish in the future depends on the "Loyalty, Service, Efficiency and Hard Work" of the younger members of this organization. Therefore, I appeal to you, as young men, not to lose your opportunity. It is here now, grasp it. If you sit idly by and let the older men and the men who are purchasing agents and storekeepers handle all the subjects which are brought before this convention, do not complain if you go home and the management of your railroad fails to recognize you. This is the place for you to advance the theories which will make your department the most efficient and the fact that older men and men holding higher positions than you, who criticize you or your theories, ought not to make you weak but strong, if your theories are right.

I wish I could impress upon the purchasing agents and the general storekeepers, and the local storekeepers, what courtesy means. Many of you know I am a privileged character and I travel over a great many roads, east, west, north and south. Sometime ago I was out with a high stores officers of one of our great railroads. He met a man in his department who had a very important position. He simply nodded to him and passed on. The man's heart was broken. It would not have cost him anything to grasp him by the hand and say "Good morning, Jim, or Jack or Harry" and that man would have been more loyal, given better service, been more efficient and worked harder.

I do not think that this official intended to offend anybody, for I know him personally and he is one of the biggest, warmest hearted, most lovable men you ever knew, but he missed his opportunity he failed when he ought to have made good.

Last year in addressing you I appealed to you along this line. I still appeal to you, know your men, speak to them, be kind to them. If you have a man that needs correcting, if you cannot correct him or call him on the carpet in a way in which he will feel there is something good in him, discharge him and get somebody you can find good in.

Address of Vice-President Besler of the A. R. A.



Our Division VI is of comparatively recent origin. The necessity is not as great for co-ordinated activity as is the case with other features of railroad operation.

The creation of Division VI—Purchases and Stores was because of the thought that a co-ordination of the officers who are charged with the responsibility of this particular function of railway operation seemed not only desirable, but distinctly advisable. Other Departments had been co-ordinated and a reasonable degree of uniformity of procedure accomplished, with corresponding beneficial results.

Nevertheless, there are features of our Division which lend themselves to a reasonable degree of uniformity of action, and I believe that the work which has thus far been accomplished by this Division has more than justified the hope that we had in mind in its creation.

If I might use a simile, while perhaps not directly applicable, it is to point out what has been accomplished through the organization of chain stores. We know that an individual railroad company may be successful without necessarily becoming a member, or even paying any attention to what we are doing in Division VI. But we also know that in a comparable measure and through the activities of Division VI we have to some extent approximated the favorable conditions which underlie the ever-increasing number of chain-store arrangements.

Doctors have annual conventions, bankers have annual conventions, manufacturers have conventions, and I might go on almost indefinitely with the larger, only to follow with the smaller business activities of the country, and in each case we would find an association and a conven-

tion with its accompaniments of general committees and special committees dealing with the features of that particular activity; so that, with such a precedent, we felt warranted in the creation of Division VI, and that opinion has been fully justified by the accomplishment in a remarkably short space of time of your activities.

A Period of Readjustment Inevitable

In my opinion, a period of readjustment is not only inevitable, but is near at hand, and its initial stage with increasing unemployment is actually here. I will venture a further prediction which is, that the price scale will be progressively downward, not upward, for a number of years, and if it so happens that I am correct, its natural concomitant would be against loading up with any considerable volumes as against long time future deliveries.

Wages and Lower Cost of Living

A further thought, and Mr. Gompers to the contrary notwithstanding, wages will be affected and will be brought down as a matter of course and in harmony with the lowered cost of living. The world tendency is toward lower tariffs, and we will experience the same effect in this country and that is, it will drive the United States more and more toward lower tariffs. You can well appreciate what this means, and in its relation with your particular activities and functions.

Group Purchasing Agency

In line with your activities and functions, my attention was recently called to a situation which I understand exists among certain of the large western lines, whereby through some arrangement or agency they are securing the benefit of cut rates and prices through group purchasing.

The gentleman who mentioned the matter to me was not sufficiently posted concerning the details, except to say that this information had reached him through a friend who was acting in this capacity, and the purpose of his inquiry was whether there would be any use in his attempting to bring to the east and for the benefit of the eastern lines this practice which has been inaugurated in the west.

I am not sufficiently informed to be able to give you any more than this intimation of what it is reported is taking place. I asked him, however, were the purchasing agents of these lines interested and involved in the transaction, to which his reply was that he understood they were not, but that it was being handled by the executives and that it was along the lines of the theory of possible economies which would ensue through the consolidation of the railroads of this country into the 19, more or less groups, which has been suggested.

Of course, if there was but one system of railroads in this country, as was theoretically in effect under federal control, all individual purchasing departments would be abolished, and instead thereof there might be a consolidated purchasing department with sub-departments, after the nature of storehouses and supply depots, etc., perhaps, by way of simile, a situation such as was brought about during federal control of the consolidated ticket offices, and the assumed economies that would be effected by such an arrangement, concerning which I am reminded of the adage that "All is not gold that glitters." While there are still in existence some quasi-consolidated ticket offices and, to a greater or less degree, some of these have

found favor with the public, yet it has not furnished by any means the panacea.

Publicity in Railroad Affairs

Digressing for the moment, to touch on the subject of Publicity in the legitimate efforts which the railroads have undertaken in order to bring to the attention of their patrons, and to influence to the extent that was fair and reasonable, a public sentiment favorable to the railroads in the difficulties which confront them, and particularly so in the matter of legislation, threatened or real, inimical in many instances to the very existence of the railroads:—

As you are well aware, the attempt has been made through your departments to reach the friends and patrons of the railroads, and to disseminate through the medium of your correspondence and more intimate touch with the manufacturers and those doing business with the railroads, the presentation of facts and figures concerning actual conditions in the matter of revenues, expenses, taxes and net results, etc.

Your ramifications reach a wide circle of producers whose interests may be very greatly injured by adverse legislation.

Large commercial institutions undertake to circularize their patrons. Insurance companies, banks and other institutions doing business with large numbers of the public issue statements and pamphlets, so that the public with whom they are doing business may appreciate and understand conditions and situations for the mutual benefit of all parties concerned; yet it is a fact that when the railroads attempt to present for consideration their problems in connection with the only thing they have for sale, viz., Transportation, legislation has actually been proposed that any expense in connection with such so-called alleged propaganda shall be prohibited.

There is a remedy for this, and the time for taking, or rather giving, a dose of medicine which shall effect a remedy is very close at hand. It is time for business men and citizens generally to give their most serious consideration to the political situation.

Future Activities of Division VI

I wrote a letter, I think it was a year ago at the time of the annual meeting, wherein I urged the desirability of centering our activities upon a few well-considered subjects, rather than attempting a great diversity of action. What I meant was that we should use a rifle instead of a shotgun, and land big game with a well-directed aim, rather than take a pot shot at game of lesser size. Not that lesser size game is to be despised, but because I believe we can do better and more effective work by concentration.

I again urge the continuation of our efforts in this direction as has been so splendidly exemplified in the well-prepared reports which have been presented for consideration at this meeting.

An Expression of Appreciation

The Chairman: We certainly appreciate these words from Mr. Besler, coming as they do from a man who is the president of one of our large railroad systems, and moreover being as we might say our boss, as first vice-president of the A. R. A. We are glad to hear these words of appreciation in regard to our work, that he says we have performed. And then, men, let us take to heart these solid facts in reference to the situation that is facing us to day. This is a talk that it is good for us all to hear, and then when it is in print, to study it more.

The Purchasing Function of the Government

By Col. H. C. Smither,

Chief Co-ordinator United States Government



I shall preface my remarks with the general statement that the guiding principle in the present day effort to simplify and standardize the government's business in the interests of economy is one of controlled co-operation. Since this is the same principle that has led the railways to associate themselves for their mutual benefit, I shall approach my subject with greater brevity and directness than ordinarily is necessary to a clear understanding of the government's affairs.

The President of the United States has created by his own executive order the office of chief co-ordinator to supplement the Bureau of the Budget, created by law, in bringing about supervision over the entire range of the government's routine business. The routine affairs of the government are conducted under laws enacted by Congress, and within the limits thus prescribed the ordinary precepts of good business judgment as they are accepted and applied in business generally are being so applied to the conduct of the business of the government.

Exercising his executive powers, the President added to the duties required by law of the director of the Bureau of the Budget, making of him a general manager of the government's routine business; giving him by executive authority the necessary machinery in addition to the Bureau of the Budget that would enable him to carry out his added duties. There was created by the President's executive order the office of chief co-ordinator, possessed of delegated inherent authority and having direct supervision over co-operative agencies set up to bring the existing government business organizations into a close relationship capable of concerted and united action. The whole constitutes a fine example of sound legislation limited to a basic enabling act, and this properly extended by executive action.

Determining the Items of Purchase

The first question that naturally presented itself with respect to purchases was that of determining the items of government purchase, and this in turn immediately disclosed a great and widely differing variety of the same things; not purposely differing, but just happening to be different because there had never been any contact nor up to that time any real reason for standardization as of the government as a whole. Although the Federal Purchasing Board was created before the Federal Specifications Board, it did not begin to function with real effect until long after the Federal Specifications Board had begun to produce its specifications.

If there had ever been any question as to the value of standardization, certainly the late war emphasized its need so clearly and so forcibly as to remove any doubt in the minds of those who had to do with the procurement of supplies from sources already exhausted or who had to provide for the replacement or replenish-

ment of stocks where an infinite variety of sizes, styles, shapes and whatnot existed. The director of the Bureau of Standards is ex-officio chairman of the Federal Specifications Board. Its work is actively guided, however, by the vice chairman, N. F. Harriman, who, it so happens, had his first experience along these lines in connection with railway supplies. I could pay no better tribute to the success with which he has performed his work than to say I believe the specifications promulgated by the United States government are without a superior in their respective lines anywhere. England, Australia and Czechoslovakia have asked for and are receiving specifications promulgated by the United States government. Many state and city governments throughout the United States also are being supplied.

The product of the Federal Specifications Board are master specifications and constitute the basis upon which departments may expand in the necessary detail of refinement to suit their own needs. A master specification has sufficient flexibility to cover the entire range of necessity from the highest attainable to the least expensive quality that will suffice in any given item. Based on the master specification, the purchase specification is an exact instrument whereby the purchaser may convey to the producer a statement of his needs in a language fully comprehended by the producer.

The standardizing of specifications having been provided for, the next question in order to arise was the form of contract. Not only was there no standard form of contract for the federal government, but within the same department, in many instances, there were different forms. There are now between two hundred and three hundred separate statutes, all dealing with contract procedure and all differing in some respect, due entirely to the fact that legislation was separately sought, and not because of any real reason for differences in procedure.

To deal with this situation, the President created, by executive order, the Board of Contracts and Adjustments. This board was charged with the highly important duty of standardizing and humanizing government contract forms. This in part has been accomplished and is progressing rapidly toward completion. A standard lease for use of all contracting agencies of the government has been promulgated and its use made mandatory by order of the President. In order again to inject that essential element of flexibility with which to meet unforeseen contingencies demanding a change in the form of this contract without opening the door to a gradual return to a wide variety of contract forms, any department, bureau or establishment of the government, confronted by what is deemed to be a real need for change, may submit the matter to the Board of Contracts and Adjustments, and the board's decision thereon, when approved, is final.

Co-ordinated Procurement on a Business-like Basis

With these two things accomplished, it would appear that the government was in a fair way to enter the field of co-ordinated procurement on a business-like basis. Purchasing practices within the government, however, had grown up over a long period of gradual growth under conditions least favorable to concerted effort on behalf of the Federal Government as a whole. In the treasury department alone there were found to be 26

separate unco-ordinated purchasing agencies; in the Department of Agriculture 18, and with one notable exception, that of the Navy Department, where purchases were highly co-ordinated in a Bureau of Supplies and Accounts, all departments of government had a varying number of these independent agencies differing in size from that of retail purchasers on up to the scale of large wholesale dealers. Taken in the aggregate the government was probably the largest single procuring agency in existence, and its position was highly unfavorable to business-like management. Before the Federal Government could act as a unit, it was necessary to bring about co-ordination within the departments themselves, and this was far from the simple task it would seem to be.

At the present time the requirements of all agencies of the government with respect to important items that are federal rather than departmental in character are being synchronized and a single order is being placed covering them. The payment of bills, however, still remains cumbersome and capable of great improvement when enabling legislation shall have been enacted.

A specification lacks force, a contract fails to be binding, and purchasing methods, however business like, become ineffective without efficient inspection to determine that agreements are being complied with. The Department of Agriculture, the Department of the Interior and the Department of Commerce are all possessed of expert personnel equipped along specialized lines and capable of giving the highest type of inspection service for all departments of government within certain limitations existing at the present time. The services of these departments are being utilized for this purpose, and such use is expanding.

Reverting to the Federal Specifications Board, that body now has 65 to 70 technical committees at work standardizing specifications for groups of related items. Up to the present time specifications covering 170 or more different commercial materials and commodities have been adopted and promulgated as official government standards. Thus far the activities of the board have been confined to commercial articles alone, to the exclusion of materials and devices of a strictly military nature.

The Federal Specifications Board co-operates with the American Engineering Standards Committee and with manufacturers. Through this means the board is enabled to keep its specifications abreast of commercial practice and to indicate to industry those articles needed by the government that are not procurable commercially, in order that they may, wherever practicable, be adapted to commercial use, and *vice versa*.

The Question of Human Preferences

The steady trend of the railways toward standardization is well known. The American Railway Association, through its several subdivisions, has advanced a long way toward the goal of standardized practice. However, I am inclined to think that the problem of the railways in this respect is in general less difficult than that which confronts the government. The purchasing agent for private industry has the right to exercise preference. The government official, on the other hand, may not in justice exclude from competition, through the exercise of personal preference, any article that accepted standard tests have established as suitable, although he may believe that one article is relatively more suitable than another for his purposes.

It is a human characteristic to acquire preferences, though these may frequently be based on an unconscious

prejudice not established by fact. Preferences for special brands, trade names, or other standards of identification may not be catered to by the trustees of the public business, no matter how well founded these preferences may be, unless the preferred article stands alone in its field of competition. Instead, once a standard specification has been produced, the suitability of materials to be purchased under it must be determined by some form of test, and this can be done only when the properties upon which stability depends are known factors that can be measured by some form of known test.

Laboratory tests to determine individual properties upon which quality is known or assumed to depend is, when applicable, the most direct means of pre-determining suitability. Simulated conditions of service to a less convincing degree establish probable performance under conditions of actual service that may or may not confirm the results. The convincing test of actual service finally establishes the suitability of an article for its purpose. Once a standard specification has been perfected, one or all of these methods are resorted to in the absence of known quality when conditions warrant the expense.

In the absence of emergency conditions requiring immediate open market purchase, the law requires that government purchases be made only after advertisement that such purchase is about to be entered into and under competition, usually by sealed bid. The award, in the absence of any established reason to the contrary, must, under the law, be made to the lowest responsible bidder. There is a class of article, of which lubricating oils constitute a type, for which an exact specification has not as yet been possible of construction by anyone, so far as I know. This class of article has some individual property, not determinable by laboratory test and which only an actual service test will discover, that makes exceedingly difficult the predetermination of performance under service conditions. In such cases the lowest bid per unit of quantity is not necessarily the lowest bid in actual expenditure of money to secure a given amount of service over a fixed period of time.

Determining the Factor of Utility

The determination of the factor of utility of oils has been under study at the Bureau of Standards for years and has proved most elusive. Its determination, however, is now not far off, and present experiments indicate that it has some relationship to a co-efficient of friction which will determine relative lubricating qualities. In order to overcome this difficulty, prospective bidders are first invited to meet the terms of the specification. This excludes all oils that are known to fall short of giving satisfaction, and confines competition in subsequent service tests to certain classes. As the result of these tests, dealers whose products give satisfactory performance in actual service are known, and these conditions are made part of the competition, are well known by all dealers, are generally accepted by them and have resulted in enabling other dealers to improve their products.

The effort in procuring supplies for the government is one of mutual co-operation between many purchasing agents, directed and controlled through co-ordinating agencies appointed for the purpose by the President. This makes for the same end that is sought in industry; the avoidance of interior competition, the purchase of supplies on a scale sufficiently large that economy results therefrom and has the advantage of great flexibility with resulting expedition in meeting demand for supplies.

Address by Chairman Hall

This represents the twentieth anniversary of the birth of the old Railway Storekeepers' Association, out of which organization grew this division of the American Railway Association. It is only fitting and proper, therefore, that we should pause a moment and turn back the pages to that yesterday when a few courageous, keen, alert, far-seeing men, under the leadership of our old war-horse, J. P. Murphy, met in Chicago on May 23, 1904, to establish an organization to assist the railroads they represented to obtain more value from their stores departments and to bring about a more systematic and economical handling of materials and supplies. Consider for a moment the position occupied by the purchasing and stores departments of that day, as compared with our similar positions of today—then you have a bird's-eye view of that which they have accomplished, or which they so materially assisted in accomplishing.

In his address before the Railway Storekeepers' Association in Washington, D. C., in 1914, Fairfax Harrison, president of the Southern Railway, made these remarks:

"I believe in your association and I am here today to tell you that. That is more than anything else what I have come for. You are doing good work. A man who sits by himself in his storehouse or in his office or anywhere by himself, cannot get the same results as if he will meet together with his colleagues who have the same problems, who will confer upon these problems and will seek an intelligent solution of those problems in conference."

So I feel keenly that this Division owes much to those far-sighted veterans who brought such an organization together, and I trust that later on in our program suitable action will be taken to further express such appreciation. It is a continual delight to us to realize that most of these same men are still active in our organization today.

Much Constructive Work Accomplished

During the past year, your General Committee and committees on individual subjects, have been very active, and the result of their labors will be evidenced in the next few days. I feel that much constructive work has been accomplished. In addition to the regular subjects, however, our Division has been called into a number of additional activities, such as being actively represented with other divisions in specifications for material and also in numerous government conferences on the question of simplification of material stocks, and several conferences with the Bureau of Standards on the question of classification of iron and steel scrap.

In addition to these, your General Committee has specifically endeavored to bring about active cooperation with representatives of the other divisions of the American Railway Association on the question of simplified stocks. We, who are so actively identified with the purchasing and handling of materials and supplies know that in many cases various articles have been stocked where one article, standardized, would answer. We felt there was no division more interested in this simplification of such items than ours, therefore, we endeavored to take the initiative in establishing active cooperation for an intensified study of this subject. We regret to state that while some of the divisions were agreeable to such cooperation, at the present time we have not been enabled to secure full cooperation from all divisions. It is our hope, however, that in the year to come, this sentiment can be so crystallized that more definite and active steps can be taken as to bring about the desired results.

Last year at our opening session, we had laid down for us the most concrete objective ever presented to our body. In President Aishton's opening remarks, he delivered to us the railroad's promissory note to the people of the United States, and stressed particularly our own part in that big program. The results are now a matter of history, and we have reason to be proud of our part in the payment of that note, and we will always be grateful to President Aishton for his message to us that assisted so materially in creating a spirit that caused our forces to "carry on" and to "go over the top."

The Future of Division VI

What of the morrow? What of the future? During my tenure of office and my relationship with the members of this Division, my observation has been that the men on the roads do the most in committee work and research, secure the most benefit. "As ye sow, so shall ye reap." Therefore, the future of our organization depends upon our willingness to cooperate and the amount of zeal, enthusiasm and endeavor we as individual members and representatives of the various roads, put into our committee and research work; otherwise expressed, if we are willing to pay the price we can and will succeed. I cannot urge too strongly upon the members of this body that they recognize their responsibility and be ready to assist in every way possible when called upon by the chairman of the Committee on Committees. Furthermore, there is nothing that has a more broadening influence upon the younger members than committee work, and association and affiliation with the older members, who also serve on such committees. It should be considered a great privilege by any member of this Division, to be offered committee assignment.

Our continued objective should be such that there will be no unapplied material handled on the railroad that is not handled by the store department. This department has an organization for that particular and specific purpose, and no other. It is not a secondary consideration with us. Material should, therefore, all be in our custody and in our charge until used. To the purchasing and stores departments of the railroads, therefore, should be assigned the duty of purchasing, receiving, disbursing, and where so desired, primary accounting for all materials.

I would feel amiss in my duty were I to neglect to express my appreciation of the hard work performed by the General Committee, the vice-chairman, Mr. Munster, our secretary, W. J. Farrell, and the chairman of our Committee on Committees, D. C. Curtis. We have held a number of meetings, at which practically all members of the General Committee attended, in most cases at great inconvenience to themselves, and in not a single case can I recall anything which I have asked of the committee in the way of work or assignment, that they have not cheerfully taken up and brought to a successful conclusion. Mr. Curtis has labored exceptionally hard in appointing committees, and securing the cooperation of those so appointed, and furthermore, he has most successfully secured members to prepare special papers that will be presented at this session.

As to Mr. Farrell, it is difficult, indeed, to express my appreciation of his cooperation and what he has accomplished. Early in the year the suggestion was made to Mr. Farrell that it would be well to visit all committee chairmen, conveying to them through the personal touch, the ideas of the General Committee as to the activities to

be followed by their committee. In such conferences, he has co-labored in outlining the activities, and at a later date again making a further visit as the reports were being prepared, to offer his assistance wherever it was needed. Our Division is fortunate in having so faithful and efficient a secretary.

An Opportunity to Gain Knowledge

May I, at this time, emphasize the reputation which we, as a Division, have for attending strictly to business during the hours of our sessions. I do not know of any body of men that can go home with a more clear conscience of good work performed and duty strictly attended to, than the members of this Division. May we urge that this year be no exception to the past rule, and that the members be present promptly at the hour of opening, and stay to the conclusion of our deliberations. The subjects that will be presented and discussed will be of interest at all times, and we should all avail ourselves of the opportunity of gaining such knowledge as we can from the information that will be brought forth.

Don't forget that this is your meeting, and the very best results can be accomplished only by a full and free discussion of all papers presented from the floor. Thus and thus only can we obtain a country-wide expression

of opinion. I trust it will not be necessary for your Chairman to urge you to respond, and we especially want the younger and newer members to feel free to express their views.

It was with deepest regret that we as individuals and as a Division, received the news of the death of our general secretary, J. E. Fairbanks. Mr. Fairbanks was at all times a friend of our Division. He assisted us at every opportunity, and in him we knew we had a friend who was not only ready but willing and anxious to assist us in any of our endeavors. Suitable resolution will later be presented emphasizing our sorrow at such loss and our appreciation of his services.

In closing, I desire to again express my appreciation of all the courteous assistance I have received during the past year from members and officers, and to express my thanks to this body for the great honor which they gave me in permitting me to serve as Chairman of the Division. It is an honor and a privilege which any man in the purchasing and stores department might covet, and it has been my constant aim and endeavor to so act and so walk that I could in some small way, feel that I had not betrayed the confidence placed in me. I trust that this convention will be such that when the gavel falls and the hour strikes for closing, we may indeed be able to say that "It was good for us that we were here."

Address of President Aishton



I have a very vivid recollection of your meeting in Chicago a year ago and some of the unfavorable and somewhat depressing surroundings, but I also well remember your enthusiasm and wholehearted reception of an informal talk I made to you regarding a program the railroads had adopted to provide adequate transportation service in 1923, and the very definite assurance made by your division that you would get behind this movement.

You did get behind it, not only as a division, but you managed to get a wonderful spirit into every individual in your line of work, and as a result the note which I told you the railroads had signed, payable to the people, was paid in full, and during the year 1923 and the year 1924 up to date not a single question has arisen as to the adequacy of transportation service performed by the railroads. The performance of the past fourteen months, together with the determination to continue these efforts on the part of everybody having to do with transportation, is a definite assurance to the American people that there will be no stone left unturned on the part of the railways to render adequate service in the most economical and efficient manner, and in so doing the transportation companies will be doing their full part in insuring the future prosperity of the nation.

Mr. Aishton then spoke on the future relation of the railroads to the American people and particularly to the farmers. (See page 1462 of June 13 issue, under the sub-head title "The Future" and also page 1583 of the June 14 issue).

Opportunities for Economics

What is your part in it? You may ask—what can we do, because I know your disposition always is to get something concrete, and I will try to show you where some opportunities lie. The Class 1 railways in 1923 purchased directly from the industries of this country, for fuel, materials and supplies, to the value of \$1,738,703,000. It may be interesting to know where this went.

You gentlemen purchased for the railways 28.4 per cent. of the bituminous coal produced in the United States, 5.2 per cent. of the anthracite, and about one-fifth of the fuel oil, at a cost of \$617,800,000. You purchased 15 per cent. of all the forest products of the country, for which you paid \$232,511,000, iron and steel products to the value of \$464,955,000, other material—copper, zinc, lead, babbitt, etc., to the value of \$57,245,000, lubricating oil and grease amounting to \$15,678,000, cement to the value of \$6,120,000, and other materials—ballast of all kinds, groceries, meat, canned goods, supplies of various kinds, brooms, matches, pencils, typewriters, paper, etc., to the value of \$344,394,000, making a total of \$1,738,703,000.

Most of this went into the operation and maintenance of the railroads, and only a small part of it went into the capital expenditures for equipment and additional facilities, for which in 1923 there was actually paid \$1,059,000,000, a large part of that sum being for lump-sum contracts, which included both labor and material.

In the case of direct purchases you gentlemen represented in this room had a direct responsibility. In the matter of purchases on account of capital expenditures, particularly for equipment, you were also a large factor. Your work does not stop there, however. No doubt in the purchase of this material every step was taken to see that the material was the most efficient for the work required and that it was most economical, not only in the first cost, but more important in the economy of its use, and that in arriving at these decisions there was the utmost co-operation between the purchasing agencies and the

various departments who are interested in these economies. My experience tells me that this is so.

How about the other features of it, after you have once purchased it. There are opportunities here; for instance, stocks on hand, avoidance of duplication and keeping stocks down to the lowest practicable limit, etc. The interest charge alone on surplus stocks is quite a considerable item. How about its distribution? How about its use after it reaches the storehouse? Is there the co-operation with the departments using the material, to see that the greatest utility is attained? Now, after all that, how about reclamation? You know, it is said of the packing industry that they use everything in a hog but the squeal. Are you utilizing to the full the opportunity for by-products? I think your association has already done a very great work in developing this subject.

Reclamation is a fertile field for your efforts, in my opinion, and your committee on this subject ought to have your hearty encouragement.

Now just a word about another subject. I talked to the International Fuel Association a couple of weeks ago about fuel conservation. Last week I stressed the opportunities in this to the Mechanical Division. Your division is a part of the Joint Fuel Committee. It's a simple problem. Just set as an objective that you are going to save a pound of coal for every thousand gross ton miles, and every pound of coal you save in 1924, provided the business is in its present volume, will mean \$3,165,000 a year. Gentlemen, that pound of coal can be saved the first month, if you really set yourselves to the task. Repeat it as often as you can throughout the year. Get behind your Joint Fuel Committee and the members of the Joint Fuel Committee. I won't go into a lot of detail, get the discussion at the International Fuel Association meetings; get the discussion of the Mechanical Division on this matter, and then get into the game. You can have a big part in it. It isn't going to require an organization; it isn't going to require a lot of highly paid men; it isn't going to require a lot of capital expenditures. It is going to require the personal interest and appreciation of the responsibility of everyone on every particular line of railroad that has to do with the saving of coal. If you will only get talking about it and get enthusiastic about the thing, the first

thing you know everybody on the railroad is doing the same thing and you will be surprised at the result.

One of the side issues of saving coal is the standby time of locomotives. Part of this is caused by waiting for material. An engine comes out of the roundhouse, it isn't provided with the necessary tools, supplies, oil, etc., and every minute of that delay means burning up some coal. Look out that part of this is not saddled onto the stores department.

Take your convention as a serious matter. After discussing these papers and after arriving at a conclusion that something is real good in it don't simply pass a resolution and go home and forget about it until next year. Get busy on it, get all your people enthusiastic about it and if you will just talk enough about it, put enough pep and ginger in it to show that you are in earnest about it, pretty soon you will have everybody tumbling over to help you bring about the results you want.

Keep this in mind, the American people have a deep interest in what you are doing today, have confidence in your knowledge, your ability and your disposition to do everything that is possible through improved methods, and through greater diligence, and the measure of that confidence will be expressed as the results you attain are reflected in decreased costs and in increased adequacy of transportation.

Remarks of Appreciation

The Chairman: Friends, we have already had a wonderful message from Mr. Besler. Now we receive this message from Mr. Aishton. I can't say anything in my feeble way. I am not going to attempt to follow up or back up what they have said. It would be impossible for me to do so; the messages have been too great. I can only express to both of these gentlemen the appreciation of this body and of the general committee for their presence, for their messages, and for the support that they have given us.

I tell you, you men don't realize what it means to take up the burden of this work with the full knowledge that these two gentlemen are behind us, have been behind us, have supported us in all that we have done and we certainly appreciate their presence and the wonderful messages that they have brought to us this morning.

Report of the General Committee

The committee reports approved at the third and fourth annual meetings were not submitted to the executives of the American Railway Association, for the reason that no annual meetings of the Association were held during 1922 and 1923. In view of this, it was decided that the reports on which we desired authoritative action, be submitted for letter ballot. After careful consideration, the following reports were submitted:

For Recommended Practice: Standard Material Classification—Revised; Standard Scrap Classification—Revised; Material Accounting; and Store Delivery of Material to Users at Shops.

For Information Only: Reclamation and Conservation of Discarded Material; Facilities for the Handling of Scrap; Office Appliances; Stores Department Buildings and Facilities for Handling Materials; Supply Train Operation; Unit Piling of Materials and Numerical Marking System; and Purchasing Agents' Office Records.

The chairman has appointed representatives from Division VI, to act on a sectional committee for specifications for materials for use in the manufacture of special track work, to be organized under the procedure of the American Engineering Standards Committee and the American Electric Railway Association. This request was received from the Engineering Division.

For the purpose of having the retiring chairman serve as a member of the General Committee for the following two years, thereby providing continuity in the management

of the division, a resolution was passed at our 1923 annual meeting to the effect that a change be made in Rule 6-C of the Rules of Order to read as follows:

"Members of the General Committee and Committee on Nominations shall be elected by printed or written ballots; seven members of the General Committee shall be elected at each regular session to serve for two years, one of whom shall be the retiring Chairman; five members of the Committee on Nominations shall be elected annually."

In accordance with Section 4 (g) of the Rules of Order, the General Committee offered the names of the following members as candidates for the Committee on Nominations during the ensuing year: C. D. Young (Chairman), Stores Manager, Pennsylvania System; E. W. Thornley, Assistant Purchasing Agent, Baltimore & Ohio; H. H. Laughton, Assistant to Vice-President (Operation), Southern Railway System; J. F. Marshall, Purchasing Agent, Chicago & Alton; and W. Davidson, General Storekeeper, Illinois Central.

General Committee: U. K. Hall (U. P.), chairman; A. W. Munster (B. & M.), vice-chairman; E. W. Thornley (B. & O.), H. C. Pearce (C. & O.), F. D. Reed (C. R. I. & P.), D. C. Curtis (C. M. & St. P.), A. S. McKelligon (S. P.), J. F. Marshall (C. & A.), R. C. Vaughan (C. N. R.), R. J. Elliott (N. P.), H. H. Laughton (Sou.), W. G. Phelps (Penna.), W. Davidson (I. C.), C. D. Young (Penna.), J. G. Stuart (C. B. & Q.), E. H. Hughes (K. C. S.).

The report of the committee was accepted as read.

Stores Department Book of Rules



W. D. Stokes
Chairman

One of the important contributions of any association to the industry or the branch of industry of which it is a part, lies in the development of a thorough compilation of the fundamental principals underlying its work. This is never a picturesque work and in fact, it often becomes a tedious task. It is one which when carried forward and kept abreast of current developments does much to stabilize industry and to render it more

efficient as a whole. This is the sort of work which the Committee on Subject One has been engaged on for a number of years. This year the committee presented a number of revisions and additions to the Book of Rules. It is recognized by the committee that the forms and methods covered do not represent the final word and are susceptible to improvement as future developments and changes may require.

The committee recommended that the following preface be inserted preceding Part I:

Preface

Obviously all railroad stores departments should follow certain fundamental principles of storekeeping. The variations on different roads are chiefly in detail. Division VI—Purchases and Stores has endeavored to embody the broad general principles that are applicable to all railroads alike, and have shown in some detail how these general principles may be carried out for the benefit of all who are now, or who may be concerned with store practices.

It is recognized that the forms and methods covered do not represent the final word, and are susceptible to improvements as future developments may require. These forms and methods are presented as recommended practices, and it is strongly urged that they be followed as closely as possible by all railroads.

The committee also recommended a number of changes which are given in their proposed form in the following:

Proposed Changes—Part 1

Section 1.—General: Paragraph 1. (a) The object of the department of purchasing and stores is to order, purchase, sell, care for, distribute the materials and supplies needed for the construction, maintenance and operation of the railroads and where desired should perform the primary accounting under the supervision of the accounting department.

(b) The work and responsibilities of the purchasing and stores departments are so interwoven they must be co-related.

(c) The amount of money involved and the importance of supplying the needs of all the departments requires that the officer who directs the department shall report to the president.

(d) The purchasing and selling of all materials and supplies of the railroad shall be in charge of the chief purchasing officer.

The ordering, caring for and distributing of all materials and supplies and where desired the primary accounting shall be in charge of the chief stores officer.

(e) The chief purchasing officer and the chief stores officer shall report direct to the officer in charge of the department of purchases and stores.

Paragraph 13. Eliminate last sentence of this paragraph.

Paragraph 22. (New paragraph.) The general storekeeper shall have full charge of the handling of scrap and reclamation of material.

Paragraph 23. Same as present Paragraph 22.

Section 2.—Organization: A classification of stores department officers and employees, and a revised organization chart is recommended as follows:

CLASSIFICATION OF STORES DEPARTMENT OFFICERS AND EMPLOYEES

For the purpose of uniformity among the railroads the following titles will be used to designate the officers and employees of the stores department occupying positions which involve the performance of the duties described, with their relative rank in the organization.

Only such of the positions indicated as may be necessary to economically and effectively conduct the business of the department should be created in any organization.

General Storekeeper: The officer in direct charge of stores de-

partment operations who is responsible for all unapplied materials regardless of location.

Asst. General Storekeeper: The officer performing the work which it signifies and such other details as may be assigned to him by the general storekeeper.

Traveling Storekeeper: The officer whose duties are to investigate methods, handling of stocks, organization, confer with other departments, and represent general storekeeper as detailed. He should be a man thoroughly familiar with all phases of storekeeping and able to take entire charge of any situation arising.

Inspector of Stores: The officer who should specialize in such work as inspection of stock books, arrangement of stocks, designing of store facilities, handling of reclamation work, installing piece-work, or other work assigned by the general storekeeper.

Chief Clerk to General Storekeeper: The employee who shall direct the clerical work in the office of the general storekeeper.

Secretary to General Storekeeper: Self-explanatory.

District Storekeeper: The officer in charge of all unapplied materials on a given territory consisting of more than one operating division.

Supply Train Storekeeper: The officer in charge of and responsible for operation of supply trains.

Division Storekeeper: The officer responsible for all unapplied materials on a given operating division.

Asst. Division Storekeeper: The officer who assists the division storekeeper.

Storekeeper: The officer in charge of all unapplied materials at a given station, subordinate in rank and reporting to the division storekeeper.

Assistant Storekeeper: The officer who assists the storekeeper.

Chief Clerk: This title is self-explanatory. Such employees should be in charge of all clerical work.

Accountant: The employee responsible for accounting work. He should be assisted by a corps of clerks and should report to the chief clerk.

Clerks: All employees performing clerical work.

Junior Clerk: Employees performing minor clerical duties.

Stenographer: Self-explanatory.

File Clerk: Self-explanatory.

Messenger: Self-explanatory.

General Foreman: The officer who under direction of the storekeeper has jurisdiction over all other employees handling material at a given station.

Foremen: Employees who shall be responsible for the work of a given force, and the title may be changed in accordance with work performed; as, for example, scrap-yard foreman, lumber-yard foreman, etc. They shall report to the general foreman.

Section Stockmen: Employees who are responsible for the maintenance, including ordering, receiving and issuing of certain sections of stock. They shall be in direct charge of the stock books. They should be expert on this particular line of material.

Store Helper: Engaged in handling and distribution of material at storehouses.

Chauffeurs: Employees operating power-driven trucks or tractor.

Teamsters: Self-explanatory.

Locomotive Crane Engineer: Employees operating locomotive steam cranes.

Electric Crane Operators: Employees operating electric cranes.

Lumbermen: Experienced employees who have specialized in and are familiar with the handling of lumber.

Scrap Inspectors: Employees skilled in and regularly assigned to direct supervision of classifying scrap and selecting therefrom material which is or may be suitable for further use.

Scrap Sorters: Employees skilled in and regularly assigned to handling and classifying scrap.

Watchmen: Self-explanatory.

Store Apprentices: Junior employees who are receiving special training to fill important positions in the stores department.

Laborers: Employees performing unskilled work.

All employees at reclamation plants, concrete plants, etc., should be designated by titles applicable to the craft to which the work they perform allocates them.

Proposed Changes—Part 2

Section 3.—Arrangement of Items: (a) Substitute Division VI—Purchases and Stores—American Railway Association) for (Railway Storekeepers' Association), referred to in this paragraph. Paragraph (a) will then read as follows: The Standard Classification of Material (as adopted by Division VI—Purchases and Stores, American Railway Association) will be used in all stock books.

Section 4.—Arrangement of Headings: Paragraph 1. "On hand." Totals representing an actual inventory of the item and at the time the inventory is taken. For the purpose of accurate and rapid taking of same the system of unit piling, adopted by Division VI as recommended practice, shall be used.

Section 12.—Standard Material Classification: The Standard Material Classification (as adopted by Division VI—Purchases and Stores, American Railway Association) will be used in all stock books.

(The classification titles were adopted at the 1922 meeting of Division VI and were published on page 1598 of the June 20, 1922, issue of the *June Dailies*.)

Proposed Changes—Invoice Form

It was recommended that the standard invoice form included in the report of the Committee on Subject Twelve and adopted at the 1922 annual meeting be substituted for invoice from P. & S. 28, page 27 of the present Book of Rules.

Proposed Changes—Part 6

Instructions for Handling "Material Released and Reclaimed":—It was recommended that a new Section 20 covering "Reclamation" be added as follows:

Section 20.—Reclamation of Material: (a) All material requiring the expenditure of labor to put it in usable condition shall be covered by shop order from P. & S. 51.

(b) A complete statement of the total operation of the plant shall be made monthly on form P. & S.-3-8.

Proposed Changes—Part 8

Section 10.—Filling Requisitions: It was recommended that a paragraph be included in paragraph (e) to cover delivery of material to shops as follows: Delivery of material to shops and repair yards and the return of manufactured material to stores should be made by stores department employees.

It was also recommended that a new paragraph be added to Section 10 to cover supply train as follows: The supply train shall be used for delivery of materials and supplies to the line of road.

Section 15.—Disposition of Scrap Material: It was recommended that paragraph (a) be changed to include reference to the standard scrap classification and that the classification be printed immediately following this paragraph.

Paragraph (a). Each storekeeper shall on the last day of each month or any other suitable date make a complete report to the general storekeeper of all scrap material on hand for disposition in accordance with the standard scrap classification as follows:

(The standard scrap classification was adopted at the 1922 meeting and appeared on page 1668 of the June 21 issue of the *June Dailies*.)

Committee: W. D. Stokes (I. C.), chairman; C. W. Kinnear (Penna.), J. C. Kirk (C. R. I. & P.), A. J. Kroha (C. M. & St. P.), L. C. Thomson (C. N. R.), F. D. Reed (C. R. I. & P.), chairman *ex-officio*.

Discussion

W. D. Stokes (I. C.), chairman: Subsequent to the submission of this report, suggestion was made in the case of "the officer in charge of all unapplied materials on a given territory consisting of more than one operating division," that it read: "The storekeeper having charge of materials on more than one division, while a

different storekeeper has charge of material on one division." As I see it, it is the same thing with a little different wording.

G. R. Jones (N. Y. C.): Under the heading, "Chauffeurs," what does the committee mean by "employees operating power-driven trucks or tractor"? Is an employee operating what we term a shop mule to be considered as a chauffeur?

Chairman Stokes: I would say yes; shop mules, auto trucks and delivery vehicles of that description.

Mr. Jones: I am fearful that if we term the operator of a truck of that nature as a chauffeur there will be a wage proposition that we will have to confront. We call them helpers or laborers and pay them accordingly. We don't think they are entitled to as much wages as a chauffeur operating a truck.

C. C. Kyle (N. P.): We have 12 or 15 men employed in this work, operating our shop mules, trucks and automobiles. We have no trouble in calling them chauffeurs, and we pay them at the rate of a store helper.

A. A. Goodchild (C. R.): We classify them as truck operators. I think according to Mr. Jones that if we classify them as chauffeurs we shall probably get into difficulty later on. We have a classification of chauffeurs which applies to operators of motor trucks. The man who is operating in the shops is a truck operator or little more than a helper. We use a helper for that classification.

D. C. Curtis (C. M. & St. P.): The storekeeper is prone to operate everything he has with a laborer and too often we get laborer's results. A man operating one of these tractors through a congested shop properly handling material, requires the highest type of intelligence and more so than a man handling a truck through traffic. He must know the location, if he is a competent operator, of all the many thousands of different items of material carried in store stock. If he doesn't, he is going to make a tremendous amount of waste mileage. We should call those fellows chauffeurs as well as the truck operator who operates through traffic.

J. G. Stuart (C. B. & Q.): I am very strong for calling them chauffeurs and I am also strong for giving them better wages than laborers and helpers. It is all right to turn over a \$1.50 shovel to a man and call him a laborer, but when you turn over a \$3,000 truck to a man you want something more out of it than you get out of a laborer and a shovel. You have a bigger investment and you have a right to get back a great deal more from that investment than you would from the shovel. It isn't a fact that a laborer could not run a truck. Of course he could, but he would run it like a laborer.

F. D. Reed (C. R. I. & P.): I don't see any one taking any exception to the title "electric crane operator." We would be as much justified in calling a chauffeur a laborer as we would a crane operator a laborer. We wouldn't think of such a thing and we always aim to have the title of an employee indicative of his duties. I don't think any one could misunderstand what a chauffeur means.

A. J. Munn (G. N.): I notice that in form P. & S. 3-8, which is intended as a statement of operation at reclamation plant, an idea has been kept up that has been in use for some time, and that is, the saving by reclamation. The form would indicate that the saving by reclamation was the difference between the cost of repairing an article and the value of that article new. That is not true, and merely makes such a statement ridiculous to include that feature in the form. For

instance, if we apply a brake-head to a brake-beam, that does not make the brake-beam the same value as new. That applies also to a great many other articles that are repaired. The resultant figure of such a statement as this would show a total saving that would be enormous, and it doesn't reflect the truth. The final column, Saving Per Unit and Total, should be revised or at least should carry a different idea.

Chairman Stokes: As far as the work of the Committee on the Book of Rules is concerned, we incorporated the form that was adopted by this Division in 1920. We don't understand that this committee has

any authority to make a change in that form without action of the Division.

The Chairman: You are entirely correct in that respect. That matter should come up, if anything, later on under the discussion of reclamation.

Mr. Reed: Section K reads: "The supply train shall be used for delivery of materials and supplies to the line." I think it was agreed by the General Committee that the words "supply train or supply cars" should be used, and *I move that that be inserted.*

(The motion was carried, after which the report of the committee was adopted as amended.)

A Method For Material Procurement

By E. J. Remensnyder

Assistant to Purchasing Agent, Pennsylvania System

In his paper on material procurement, Mr. Remensnyder has emphasized the fact that fundamentally material procurement means rendering service, and thus, that the responsibility of the procurer by no means ceases with the placing of the order. The better the control of the stock the smaller the investment becomes for material ample in quantity for efficient and economical

operation of the railroad. The primary requisite of rendering service is that of having a steady flow of material on hand to meet the demands of the various departments. This means a determined, courteous and intelligent follow-up on all purchase orders to insure that delivery may not be delayed after the date originally set. It should never become a matter of routine.

The chief concern is to render prompt and courteous service. You realize it is essential to deliver material and have it available when required, and any follow-up tickler system falls short of its purpose unless a steady flow of material to meet the demands of the service is provided.

When an order has been placed under favorable conditions as to price, terms, quality, length of haul—point of shipment to destination considered, etc., the economic value of the purchase might be lost if the goods were not delivered on time. So long as conditions run along normally they do not need special attention, but when the unusual happens, all the facts are necessary and for this reason it is of the utmost importance that the delivery of material receive close supervision from the time the business is awarded.

The delivery should be urged within a reasonable period after the date order has been issued and periodically thereafter, keeping in mind of course delivery promise made when business was awarded and the class of material involved. These promises vary considerably for certain materials and remote deliveries are influenced by market conditions, labor trouble, car shortage, embargoes, etc.

When the promised date of delivery has expired, as indicated on the office copy of order against which invoices are checked, the matter should be immediately taken up with the seller, using a form similar to the standard adopted by the American Railway Association, Division VI, Purchases and Stores, for advice as to when the material will be shipped. When results are not obtained by letters, telephone or telegraph, personal visits should be made to expedite delivery. However, the quantity, class and necessity governs how extensively the hurrying of material should be carried on by personal visits. When the policy of the management or operating department changes, making it necessary to retrench and the need for material is not so pressing, it should be hurried only as requested by the stores department, in order to provide sufficient quantities to prevent delay in operation, except when an order becomes old, say 60 to 90 days, it should be called to the attention of the stores department with the idea of determining whether or not there exists a need for the material. In some cases it is desirable to cancel.

Special and emergency requests should be given preferred attention which may necessitate, at times, partial or complete passenger or express shipments. However, this should

be confined to cases only where there is a likelihood of equipment being held. In this, the co-operation of the stores department is desirable through the medium of a daily report indicating the material absolutely required to prevent delay, thus providing a record whereby the purchasing agent is acquainted, in an intelligent manner, with the situation at all points. Further, in this regard, co-operation with the manufacturer is important in that demands are only made for such quantities as will actually relieve the situation. This is especially true when the manufacturer's activities are at their peak, or operating conditions are difficult and expensive, because of existing influences beyond their control.

It is advisable to have a report each month showing the status of all unfilled orders for each stock account over 60 and 90 days old and in reviewing these orders, where it is felt that the seller has failed to meet his obligation of delivery promised, the matter should be referred to the party awarding the business who will bring it to the attention of the firm's representative, personally in charge, with the advice that unless promised deliveries are made it will be necessary to cancel existing orders and eliminate their name from the list of bidders with no prospects of future business until they can demonstrate their ability to make shipments as promised. Of course where there is only one source of supply, dependence must be placed upon the manufacturer's executive to afford proper relief in the situation when the facts are brought to his attention in a manner which demands action. In approaching the dealer on this subject, it is important to listen to his side of the story before taking any drastic action as there may have existed a situation beyond his control which prevented delivery as originally promised.

At the end of each month a bulletin posted in a conspicuous place in the department, exhibiting the number of unfilled orders over 60 and 90 days old, serves as a pulse of the general conditions. This report also indicates the status of unfilled orders for the previous months and reflects the performance of each division in the department. Naturally each supervisor watches what is accomplished by the other fellow. It has been quite interesting to observe that the plan acts as an incentive and experience has demonstrated it is sound and produces results.

There is one thing to be avoided in the method followed in effecting the proper delivery of material and that is the

tendency of allowing it to become a mere matter of form and routine. When it reaches this stage, it becomes ineffective and is in a large measure a waste of time.

The problem of procurement can be made easier and result in economy to the railroad if the purchasing department will apprise the stores department from time to time of market conditions both as to trend in prices and prospects of deliveries either favorable or otherwise. This is an important function of the purchasing department because its daily contact with the sellers enables it to observe the trend of business conditions and offer dependable advice along this line.

A schedule of the time necessary to obtain deliveries of various commodities, showing the number of days that should be allowed between the date the requisition reaches the purchasing department and the date material can ordinarily be delivered to destination, should be furnished the stores department as often as conditions warrant or depending on changed conditions affecting deliveries.

In following up the delivery of material, perhaps the same principles are observed by most railroads but the fact should be borne in mind constantly, that there is nothing gained by waiting until the situation grows critical, and in order to obtain successful results and control the business, it is necessary to give the matter proper supervision by concentrating on the unusual conditions.

I wish to emphasize that "Material Procurement" means rendering service and the responsibility of the procurer does not cease with the placing of the order; it is the delivery of the proper material at the proper time and place that completes the obligation. It is most important to have material delivered when needed not before or after date shown on the delivery schedule used when requisition was prepared. This means better control of the stocks on hand and if followed religiously the result will be a minimum investment

in stock carried, yet ample to operate the railroad efficiently and economically.

Discussion

J. E. Mahaney (C. & O.): On our railroad we specify on the purchase order the date of delivery. In the purchasing agent's office they have a bureau that religiously lives up to the date of delivery. We feel that the date of delivery is just as much a part of the contract and agreement as the price of the material. We don't wait to make or prepare statements after 30 days for material overdue. We keep after it continuously. Emergencies may arise when the material is necessary before the date of delivery, and we apply to the purchasing department to use their influence to get it before that date to relieve the emergency.

On lumber orders, there may be reasons why the deliveries cannot be lived up to. We anticipate those reasons. We do specify the date of delivery on the purchase order, and if the mill doesn't live up to their agreement, we have a way of cancelling the order and placing it with somebody who will live up to their agreement. It is the biggest help to the storekeepers and to the men producing material to specify on the order, and to give the purchasing agent the necessary information as to the date by which the material must be furnished. The storekeeper anticipates his requirements, and if the man that manufactures or ships the material doesn't live up to his agreement, it should be cancelled. On our railroad it is cancelled.

Material Accounting and Office Appliances

The work of the Committee on Subject 4 has been confined to an investigation and study of appliances considered adaptable to the work of material accounting and office work. No equipment was recommended for the first named work as the committee found that there were comparatively few machines which could be used advantageously and economically without entailing too great an expendi-



O. Nelson
Chairman

ture. In addition to the appliances for office work previously reported on by other committees, the committee recommended the use of calculating machines. It also presented the results of a number of tests made using experienced clerks and experienced machine operators to handle the appliances. The results indicated a production by such operators $2\frac{1}{2}$ times over that of the clerks.

The committee in considering the subject of accounting and office appliances, has centralized its efforts to appliances considered most suitable for material accounting, and has not gone into other details relative to the general work of accounting, as the Book of Rules covers the subject. It found after considerable investigation that mechanical devices adaptable for material accounting are confined to a few machines which can be used advantageously and economically without entailing too great an expenditure for equipment.

Office Appliances

1. Investigation developed that mechanical appliances which can be efficiently operated in the accounting work, are practically the same as included in reports of previous committees. These reports also contained details as to use of these appliances. They are: dictating machine, fan-fold typewriter, duplicating machines, addressing machine and tabulating machines.

Recommendations—Calculating Machines

2. In addition to appliances mentioned, the committee recommended the use of calculating machines. There are several dif-

ferent makes, especially adaptable for accounting work, either hand or electrically operated.

3. Tests reveal that experienced operators on such machines have a general production of two and one-half times that of experienced clerks and an increase in accuracy of from 25 to 30 per cent. Further tests made by a certain number of experienced clerks, as to performance in additions, compared with the same number of machine operators, show the following results:

Averaged by clerks, accurate columns per hour, consisting of five figures wide and 30 items long.....	29
Averaged by machine operators, accurate columns per hour...	71
On work consisting of calculation of percentages, multiplication, addition, cross-footing and conversion of pieces of specified weight average time for clerks.....	43 hrs.
for experienced machine operators.....	16 hrs.
Total errors—	
by clerks	587
by machine operators	64

4. Machines of this character are well adapted for use in stores accounting work, such as:

Stock cards and stock reports,
Compiling oil disbursement sheets,
Payrolls,
Department invoices,
Material classification ledgers,
Bills,
Materials expended,
Materials released,
Oil and waste issues,
Issues of expenditures for track and line materials,
Reclamation reports,
General use for summarization of various documents,

in other words, all clerical work of the office, involving calculation of percentages, multiplication, division, totalling and cross-footing reports, conversion of units into weights, or weights into units.

5. The mechanical appliances will reduce figure work to a simple mechanical process and to that extent eliminate the "human element," reducing to a minimum the possibility of errors.

6. It was the opinion of the committee that where office appliances can be properly operated by electricity, that same be given consideration, with a view to getting as near 100 per cent. use out of the machines as possible, thus further reducing mental labor.

Recommendations—Stencil Paper

7. To obtain ultimate economy in the use of the mimeograph, the committee recommended that a good grade of stencil paper be used. This paper should be indestructible, flexible, non-deteriorating and containing no wax. It should be moistened with a proper solution, several of which are obtainable, instead of with water. A good grade of stencil paper, if properly taken care of, can be filed away and used many times, whenever additional copies are required. The committee has found that such stencil paper is far superior to the old wax paper, which after having been cut and put through the machine, is thrown away.

Recommendations—Telephone System

8. In addition to the strictly mechanical office appliances, the committee recommended that the automatic inter-departmental telephone system, which has proven its economy in other depart-

ments, be carefully considered in affording economical means of communication between operating and accounting forces.

Committee: O. Nelson (U. P.), chairman; W. E. Brady (A. T. & S. F.), L. Killmer (G. T.), J. F. McAlpine (C. B. & Q.), G. W. Snyder, II (Penna.), H. H. Laughton (Sou.), chairman *ex-officio*.

Discussion

O. Nelson (U. P.), Chairman: The committee had a rather difficult time in working up the report, in that it had to keep itself away from the accounting problems as that subject was in the hands of a general committee and we did not want, on that account, to go into that subject as we felt we would simply be interfering and perhaps cause trouble. That is why we dismissed that part of it with the simple remark that it was covered by the Book of Rules, which it is.

C. D. Young (Penna.): It is probably not within the province of the committee to outline how to get the utility expressed in Paragraph 6 out of machines after once the investment has been made. I believe if a close analysis is made of most operations, through consolidation of forces, the mere fact that you consolidate them will reduce the number of man hours required in the month to complete the operation. When you get consolidation effected, you have the opportunity for using machines that is not otherwise available to you; when the forces are dispersed it would hardly warrant the capital investment in the purchase of the machines reported in this committee report. In that way you will keep the machines busy one hundred per cent. of the time and warrant the capital investment, and I know you will see a payroll reduction in the clerical effort of the storekeeper.

The report of the committee was accepted by the Division.

Report of Committee on General Accounting

The committee submitted a report on Establishing the Proper Basis for Comparing Material Balances on the Various Lines. Several formal meetings and informal conferences were held by the committee with representative of the Railway Accounting Officers Association, and the following classification with its text is in accord with a similar report submitted to that association for its approval and adoption:

Grand Total Account No. 716—Materials and Supplies

1. Ties—Cross, Switch and Bridge:—Include cross and switch ties, both hewn and sawed; bridge and trestle ties including elevation ties; treated and untreated. Exclude longitudinal ties and ties covered by Class 7.

2. Rail—New:—All new rail including girder rail—by sections and weights per yard—gross tons and value. Exclude material covered by Class 7.

3. Rail—Relay:—All serviceable second-hand rail—including girder rail—by weights per yard, gross tons and value.

4. Signal, Interlocking, Telegraph and Telephone Material:—All material required for repairs and renewals of signals, electric and telephone plants, devices and fixtures. Exclude material covered by Class 7.

5. Bridge and Building Lumber and Structural Steel:—Include all bridge and building lumber and structural steel required for repairs and renewals of bridges and buildings. Do not include in this account other items of material used in connection with bridge and building work, such as lime, cement, stone, sand, hardware, bolts, washers, reinforcing rods, etc. These items should be included in Class 14. Exclude material covered by Class 7.

6. All Other Track Material:—Include all material required for renewal and repairs of roadway and track as listed under Account 216 in the Classification of Operating Expenses of Steam Roads, except such items as are carried under other headings. Exclude material covered by Class 7.

7. Material Held Specifically for Additions and Betterment Work:—There should be included in this class only such materials as are specifically assigned to work chargeable to investment in road and equipment and held for such work. Other materials of a common nature ordered for and carried in stock that might

be used on work chargeable to investment in road and equipment should not be included.

8. Fuel—All:—Coal, coke, wood and fuel oil for locomotives and stationary boilers. Do not include anthracite coal ordered for heating purposes or blacksmith's coal. Gasoline should be included as a separate item where it is to be used as fuel for motor cars used for handling traffic.

9. Ice—Storage:—Include ice held in storage or ordered for icing refrigerator or passenger cars. Do not include miscellaneous supplies delivered for daily use at depots, shops, offices, etc.

10. Dining Car and Restaurant:—Commissary supplies; include all provisions, supplies, tableware, etc., required for maintenance of service. Exclude equipment chargeable to additions and betterments.

11. Stationery—Including Postage:—Include all stationery, raw stock material, postage, office supplies and mechanical office devices, such as typewriters, adding machines, etc.

12. Material in Process of Manufacture:—Include all items that are being manufactured in shops from raw or finished material, also items that are being repaired and will be returned to stock.

13. Scrap—All Kinds, Including Scrap Rail:—Assorted, or unassorted, and from whatever source.

14. Maintenance of Equipment, and All Other Material:—This to include material and supplies carried as storehouse stock, and not included in other classifications.

It is the recommendation of your committee that this classification and text be approved and adopted when a similar report is adopted by the Railway Accounting Officers' Association.

Committee: H. H. Laughton (Sou.), chairman; H. C. Pearce (C. & O.), C. D. Young (Penna.).

Discussion

A. W. Munster (B. & M.): I move this report be adopted.

G. R. Jones (N. Y. C.): Under article Number 4, Signal, Interlocking, Telegraph and Telephone Materials, did the Committee give consideration as a separate ac-

count to material applicable to automatic train control for roadbeds and also for locomotives?

H. H. Loughton (M. St. P. & S. S. M.): It was the opinion of the committee that that could be included in that head. This report is the result of a joint decision and action by a committee of the Accounting Officers Association with the committee of this Division. It is the result of many meetings and many months of hard labor, and while we could not meet the wishes and requirements of all the members and of all the railroads, we have striven to the point of doing the most good for the greatest number.

C. B. Hall (Penna.): I should like to suggest, for the consideration of the committee, the use of "net tons" as a measure under Item Number 3—Rail Relay. I think this association has gone on record generally as being favorable to the net tons in its reclamation and scrap work.

Chairman Loughton: The committee will accept that recommendation.

Mr. Munster (B. & M.): I will change my motion to provide for the acceptance of the report with the change of "gross" to "net tons."

The motion was carried.

A Bonus System For Efficient Stockmen

By J. E. Mahaney

Superintendent of Stores, Chesapeake & Ohio

Any plan which will result in an increased interest and endeavor on the part of the stockman or, as he is called on some roads, the section storekeeper, is of particular value. Many plans have been tried, among which is the bonus system. This system contemplates usually an award of some nature based either on a competitive rating or on the performance of the work over and above

a certain minimum standard. The system which Mr. Mahaney has described in his paper is that which has been in use on the Chesapeake & Ohio for several months and with satisfactory results. The awards are made on a percentage comparative basis by the section storekeepers themselves, acting in a group as judges. The ratings are posted and two non-money prizes are awarded.

The bonus system was installed on the Chesapeake & Ohio several months ago, and is no doubt similar to that in effect on other railroads. It has produced excellent results and is working out very satisfactorily. The plan and purpose of the bonus system was to improve the service, reduce stock, avoid delay in handling requisitions, the taking of an accurate inventory each month, the keeping of records correctly, and up-to-date, the care and condition of material and to increase efficiency of the section storekeepers. The term "stock man" is not used on this railroad. The title of the man in charge of the various classes of material is "section storekeeper."

The fact must be recognized that the stock book and the section storekeeper are the hub of the wheel and the foundation of the entire stores organization. The ability of the section storekeeper and the accurateness of his records regulate the stock balance and the troubles of the man in charge of the department. It is, therefore, to the mutual interest and benefit of both to increase efficiency to the highest possible standard. The bonus system has done more than anything else I know to accomplish this.

The plan has for its purpose giving markings based on constant intelligent application instead of spasmodic cleaning up. The schedule for computing efficiency of the section storekeepers for the purpose of awarding the prizes is as follows:

Physical conditions, materials—50 points:

Arrangement of materials	15 points
Unit piling	15 points
Marking	10 points
Condition of racks and platforms.....	10 points

Condition of records—50 points:

Average age of requisitions on hand.....	15 points
Greatest reduction in number of days average from month previous	10 points
Accuracy and neatness in maintaining stock-books.....	15 points
General condition of records (files, pink sheets, tracers, short reports, letters of instructions)	10 points

Prior to the monthly inspection, each section is checked by a foreman as to the 50 per cent. condition of records. The monthly inspection of the 50 per cent. physical condition is

made by storekeeper, foreman, and all section storekeepers in a body, each one reaching his own determination, making his record, and casting his ballot as applied to each section, after which a record is made by the storekeeper of the ballots, and a consolidated tabulation made reflecting the average marking by those inspecting and voting. On these results, the prizes are awarded. From this, it will clearly be seen that the awards are actually made by the section storekeepers themselves. The above plan eliminates the possibility of a man being lax during the month, and cleaning up only on the day of inspection.

In carrying out this plan the section storekeepers themselves act as judges. Inspection is made of all sections on a certain day each month. The date is selected by the storekeeper. On this date the storekeeper, foreman, and section storekeepers make a thorough inspection of all sections. Each section storekeeper makes a memorandum covering his judgment on 50 per cent. of the points in connection with the physical condition of the material in each section. After inspection is made all ballots are turned over to the storekeeper who prepares a form showing the ratings and percentages in accordance with the above schedule, showing the physical condition of the materials and the condition of the records as reflected by ballots made by section storekeepers. A copy of this is furnished all section storekeepers, indicating the winners.

We have found it to our mutual advantage to offer two prizes, i. e.:

- First prize—Two (2) days off with pay.
- Second prize—One (1) day off with pay.

The bonus system insures constant improvement not only of the physical condition of the various sections and the exactness of the stock book records, but also the morale of the section storekeepers. It creates a competitive desire on the part of each section storekeeper to exceed his brother workers in the efficient and orderly conduct of his section and the records pertaining thereto. It is more or less of an "honor system."

The section storekeepers entered into the plan with a spirit that has increased their efficiency, knowledge of materials,

condition of handling, etc., and has placed them on an equal basis with equal chance to obtain a bonus each month depending entirely on the judgment of their fellow section storekeepers. Probably the most efficient accomplishment has been in the reduction of requisitions being held by the section storekeepers and the determined effort that is being made by all to fill their requisitions promptly.

The success of the bonus system reflects the fact that prizes awarded are not due alone to natural qualifications, but to hard, earnest endeavor on intelligent lines. It is our purpose to assist in every practical way towards improving their facilities, surroundings and their future advancement.

Discussion

O. Nelson (U. P.): I would like to ask Mr. Mahaney how long it takes to make the inspection and arrive at the various points.

Mr. Mahaney: It takes about four hours once every 30 days. It takes a few hours longer on the part of the storekeeper to award the prizes to the winners.

Mr. Nelson: Do I understand that the committee who makes the inspection goes through the details, the documents on the section storekeeper's desk, requisitions and other papers, look through his stock book and after that look through his stock arrangement in detail?

Mr. Mahaney: The first inspection is made by the storekeeper in so far as the records are concerned. The inspection I refer to as taking four hours one day each month is made by the stockkeepers, section storekeeper, foreman and storekeeper. That inspection is that of the condition of his material, the condition of his section, unit piling and the general condition of his material and the condition of the material in his direct charge.

A. S. McKelligon (Southern Pacific): In connection with the requisitions, we have assembled requisitions, requisitions that we don't want to ship until the gang is on the job. We also have a period of retrenchment. Sometimes it is a good practice to hold some requisitions for tools of certain kinds and those articles.

Mr. Mahaney: Material held for shipment, I mean assembling material that is not taken into consideration. The section storekeeper has no jurisdiction over that whatever. As to the question of retrenchment, we endeavor to place the requisition in the hands of the storekeeper and not the section storekeeper.

Mr. Kelligon: You say the section storekeeper doesn't have the requisition?

Mr. Mahaney: When it comes to a question of retrenchment, the storekeeper collects the requisition from the section storekeeper, and should, in my estimation, keep it on his desk until such time as that is lifted.

W. S. Moorehead (I. C.): I would like to ask if under this system there is not a liability of making an improper distribution of material where you haven't enough material to fill all requisitions? What I have in mind is this; you have requisitions for say, an item of six, from ten different stores. You have on hand only enough to fill half of those requisitions. Would there not be a tendency in order to bring the average down, for your stock-keeper to ship all six to one store, thereby cleaning that requisition off the clip, rather than hold and make distribution between the different stores?

Mr. Mahaney: Our distribution is based on the dates of the requisition and the section storekeeper that would ship six of one item to one and hold 5 back orders wouldn't be considered a section storekeeper.

W. S. Moorehead (Penna.): Doesn't this tend to increase your stock? Naturally a section storekeeper is going to make an effort, and extraordinary effort, to keep

the unfilled requisitions off his clips. Wouldn't that storekeeper order heavier that he ordinarily would in order to take care of all these orders, and if he didn't, how do you keep a check on him to know that he doesn't?

Mr. Mahaney: The section storekeeper orders material every 30 days; takes the stock accurately and enters in the stock books. In the stock books he enters the amount of the material he owes. The storekeeper ordering the material checks both the amount he owes and the amount on hand and what he proposes to order. The storekeeper is the judge as to how much shall be ordered and how much shall be carried. When it comes to the final ordering, the storekeeper is the boss.

INFORMATION REGARDING TIME OF INSPECTION

C. C. Kyle (N. P.): The report says the date is selected by the storekeeper—the date of inspection. Just when does he give the information out showing the time of the inspection?

Mr. Mahaney: About two hours before the inspection actually takes place.

G. A. Secor (C. & A.): On the question brought up by Mr. Moorehead as to increase in stock, that question was put up to us and we made the actual check of the stock turnover by sections in our storehouse and found that the man that had won the bonus, the most often had the best turnover of stock. The turnover of stock was not taken for his section only, but taken for the entire railroad, indicating that our storekeepers figured a better delivery of material from his section and ordered accordingly, ordered lighter and every month, their monthly requirements.

I have some interesting figures here on what this did for the Chicago & Alton. We started in the bonus system on our line with the reduction in requisitions. We made a check of our general storehouse and found we averaged 43 days old on all requisitions we held. By that, I mean the average days old of our requisitions being held in the general store was 43 days from the date of the requisition until the date of the check. This was about a year and a half ago. In June of this year, or immediately prior to this time, our requisitions averaged 93-7 days, a reduction of nearly 34 days. In other words, I mean the average number of unfilled requisitions in the general storehouse averaged 93-7 days.

THE BONUS SYSTEM

J. P. Cavanaugh (C. & O.): I think this bonus system is the most practical thing ever tried, and it gets right down to the men, down where the work is done. You are getting right to the base. You place confidence in those men that they appreciate and you get some direct results out of it. I don't think anything has ever done the good in a storehouse which the bonus system has. I think from the work we have had with it, the best results that have been obtained have been in the reductions in requisitions. A man has to keep his section in good order as we give them 50 per cent or we allow 50 per cent on the physical condition of the section. That is required in any event. But the real good is done on the check of the section records and the age of the requisitions. On the C. & O., at the general store, the number of unfilled requisitions has been reduced about 42 per cent in six months time since we worked the bonus system, and the average age of requisitions which we take every month shows a reduction.

Report on Department Buildings and Facilities

The report of the Committee on Subject 6 was largely supplemental to that which it presented in 1923, when it reported on the design of storehouses and their facilities and referred to the important features of labor-saving devices. In this year's report the committee presented a number of brief descriptions and photographs of existing facilities and of various labor-saving devices. The illus-



R. C. Harris
Chairman

trations, of which typical ones are reproduced here, show general and division storehouses, casting yards, etc. The labor-saving devices include tractors and trailers and fixed and portable cranes. A part of the report included recommendations for oil storage facilities for main supply points, local stores, outlying points and for a line storage, gasoline being treated separately.

The report submitted by this committee in 1923 covered in a general way the following: (1) The design of storehouses; (2) the design of fixed storehouse facilities, such as bins, racks, reels, etc.; and (3) an abstract of the important characteristics of labor saving devices found economical in the handling of material with outline of the work for which such devices are best adapted.



Labor Saving Devices—On the C. R. I. & P. at Silvis, Ill.
An Example of Gasoline Tractor with Inexpensive
Trailers for Use in and About the
General Store

In that report various important features of design were brought out as guides to members contemplating the preparation of plans for storehouse facilities. The committee has since endeavored to collect descriptions and photographs of existing facilities and labor saving devices to illustrate features of interest and value, and submitted with this report photographs of general stores as an Exhibit A and photographs of local stores as an Exhibit B.

Oil Storage Facilities

For convenience this section has been divided as follows:

- 1 Main supply points, where local delivery is combined with shipments to other stores and with distribution by supply trains.
 - 2 Local stores handling local deliveries to car and locomotive shops and enginehouses.
 - 3 Outlying points, such as branch line terminals where no stores department representative is located.
 - 4 On line storage at section headquarters and for signal work.
- Main Supply Points.* Storage facilities should consist of fireproof buildings detached from the main storehouse but served by the same track and, if possible, connected by platform, thus avoiding extra expense in loading cars to other stores. These facilities should contain sufficient tankage to handle oils in tank car lots. In cases where the amount of oil stored is large, it is desirable that

tanks be set up in units of convenient size, connected by leveling pipes of same size as inlet pipes. Inlet pipes should be recessed in platform wall. Where tanks are set up in series, inlet pipes, hand pumps and power pumps should be connected with each tank.

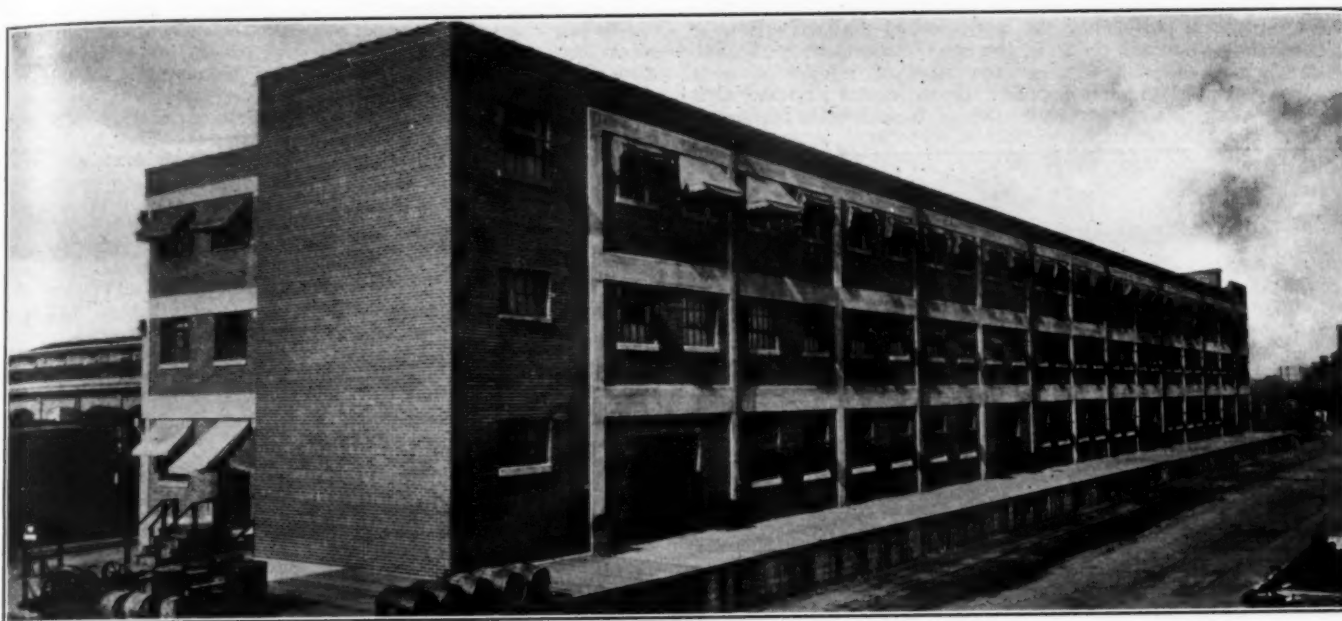
Motor driven pumps equipped with measuring devices and automatic motor control for filling drums and supply train tanks are essential. Outlet pipes should be provided inside the building in connection with power pumps and outside the building along the platform. Discharge pipes are desirable at each end of platform for filling supply train tanks, so as not to interfere with unloading of tank cars. These two sets of discharge pipes may be used, one as a suction pipe and one as a discharge pipe for transfer of tank cars in emergency. Measuring hand pumps for local deliveries made in small quantities are necessary. Floor tanks of from two to five barrels capacity with one quart or one gallon pumps for oils of which only small quantities are used locally, should be supplied.

Local Stores. In cases where the operation is large enough to justify, the oil house should be a detached, fireproof structure with tanks in basement and under platform. In smaller operations where it is more economical to place pumps in main store and where local ordinances permit, they may be in a separate room having a con-



Labor Saving Devices—An Example of Electric Crane Truck
Illustrating an Economical Method of Loading
Material into Box Cars. The Pennsylvania
System at Columbus, Ohio

crete floor and separated from main store by fire wall. Tanks should be in concrete basement or under platform if surrounded by fireproof wall. Where consumption justifies, it is desirable that tanks be equipped for unloading oils from tank cars. All storage tanks should be equipped with measuring hand pumps. For small quantities, two to five barrels flood tanks equipped with one quart or one gallon hand pumps, are desirable.



General Storehouse of the Southern Pacific at Houston, Tex., 60 ft. by 280 ft. An Example of a Reinforced Concrete and Brick Storehouse in Which all Classes of Material are Stored. It is Provided with Transverse Shelving and Daylight Racks.

Outlying Points. Where no stores department representative is located, floor tanks of two to five barrels capacity equipped with pumps and facilities for emptying drums, are desirable.

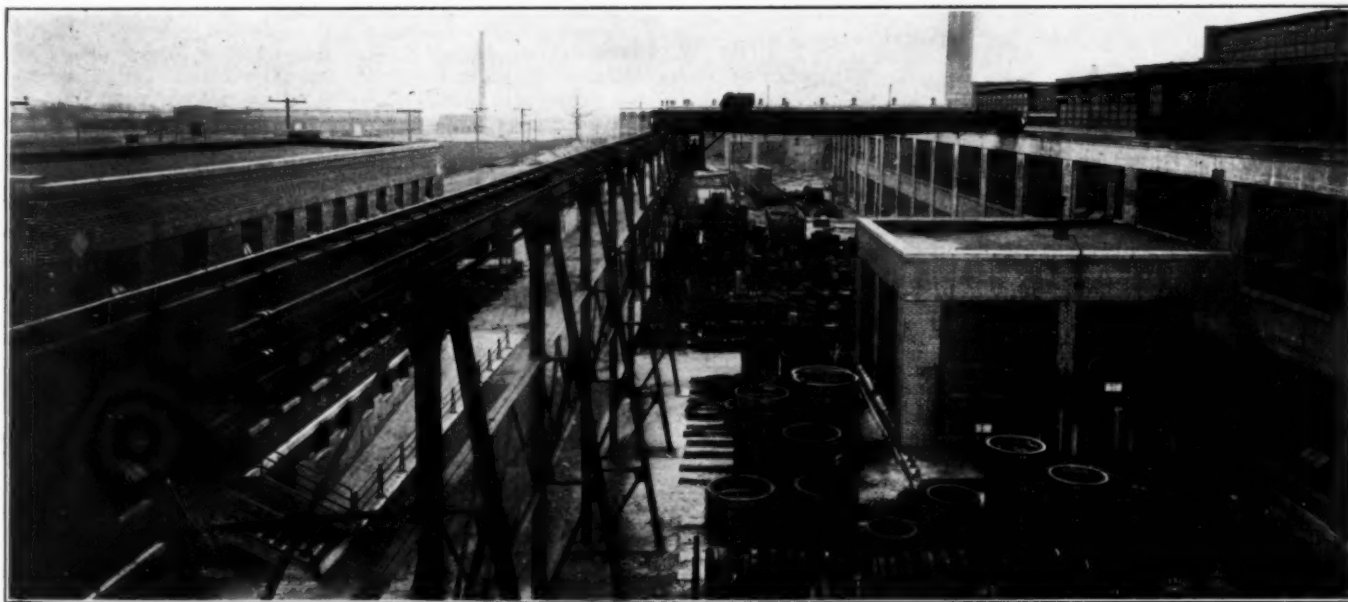
On Line Storage. Section headquarters, pump stations, etc., which are served by supply train, should be provided with buried tanks for handling gasoline so arranged that delivery can be made from tank car in supply train or from tank wagon if obtained locally. Oils should be delivered in cans by supply train oil car.

Gasoline. Facilities for handling gasoline must be considered separately from those for oils. At main storage points, where delivery is made in tank cars, buried tanks should be located with due regard for the known danger in unloading these cars. Whether gasoline is to be actually handled separately or in conjunction with oils will depend upon local ordinances, insurance rates, etc.

Labor-Saving Devices

The committee again called attention to the difficulty of laying down any hard and fast rules for determining the saving which can be effected at any one point by installing a specific type of labor saving device. Because a saving of a definite amount of money has been effected at one point by the installation of a tractor with trailers, it is not safe to assume that a similar amount can be saved at any other point by the same installation, unless the conditions are known to be identical.

After having made a thorough study of the local situation and decided upon the type of equipment which will produce the greatest saving, a system of operation must be worked out to insure the maximum effectiveness of such equipment. 1st. to arrange the movements so that the user will be served promptly by deliveries at



Storehouse (Local) of the Pennsylvania at Canton, Ohio. An Example of Overhead Crane Serving the Casting Yard Adjacent to Erecting Shop where the Building Serves as a Support for one End of the Crane. The Loading and Unloading Track is Under the Crane at one End of the Casting Yard.

proper intervals. 2nd. to direct the movements so that the total mileage made in performing the work desired shall be as low as possible (which means reducing the empty movement to a minimum).

The thought bears repeating that the movement of material is expensive and adds nothing to its value. As examples of savings



General Storehouse of the Chicago & Alton at Bloomington, Ill., 60 ft. by 250 ft. An example of a Two-Story Brick Storehouse in Which all Classes of Material are Handled. In Addition to the Storehouse, a Storage Platform, 81 ft. by 200 ft., at Car Floor Height is Provided

which have actually been effected, the Committee submitted the following.

1. One railroad saved \$12 per day net by the installation of a gasoline tractor with trailers.
2. One railroad saved \$3,400 per annum net by installing an electric swivel crane truck.
3. One railroad saved in excess of \$7,000 by installing one gasoline tractor and 33 trailers at a total cost of \$1,800, the operating cost of which approximated \$2,400 per annum. This installation was made at a point where that type of equipment was particularly advantageous.
4. The average saving on six roads reporting the operation of trailers and tractors approximated \$5,500 per annum per tractor.

These outfits in the cases cited deliver heavy castings, flues, cylinders containing oxygen and acetylene, etc., where the deliveries were previously made in wheel-barrows, trucks, etc. The tractors also perform incidental operations, such as moving cars when a shifting locomotive is not available.

Committee: R. C. Harris (Penna.), chairman; E. Harty (S. P.), W. C. Hunt (A. T. & S. F.), J. L. Irish (O. W. & N.), G. T. Richards (C. M. St. P.), J. F. Marshall (C. & A.)

Discussion

R. C. Harris (Penna.): In preparing the report the committee accumulated a large amount of data, far too large to bring into the report. Therefore, they have attempted to pick out a few typical cases and submit those cases as exhibits. All of the data accumulated is in the hands of the committee should any people want something further on it.

W. Davidson (I. C.): I would like to ask Mr. Harris if in his investigations he ran across any objection to operating gas in shop buildings?

Mr. Harris: There were some objections raised on account of fumes in enclosed buildings. I think it is true if the ventilation affects the other employees. It will have to be investigated locally.

Mr. Davidson: I have reference to fire hazard.

Mr. Harris: Fire hazard was not borne out. It was mentioned in several replies. No one seemed to feel it was a serious menace except perhaps in a planing mill.

Mr. Tobey (L. V.): I haven't had any trouble in that respect, but when we recently bought another gasoline tractor we put the proposition up to our fire insurance people and there was no objection on their part at all.

J. E. Mahaney (C. & O.): The only suggestion raised so far as any department was concerned is that we are compelled to store our gasoline in a separate building from our electricity at night.

The report of the committee was accepted by the Division.

The Duties of a Traveling Storekeeper

By W. Dixon
Inspector of Stores, Missouri Pacific

The general subject of the duties and opportunities of a traveling storekeeper have been covered from different angles by three different papers, of which this is one. Mr. Dixon has developed these duties in considerable detail and illustrates clearly the important relationship which the traveling storekeeper bears to the correct functioning of the stores department as a whole. Primarily, the



W. Dixon

traveling storekeeper is charged with the carrying out of the policies of storekeeping as outlined by the general storekeeper. This involves, of course, the inauguration, development and recognition of ideas of merit and the applying of them to department procedure. It also involves multitudinous duties which are quite fully described in this paper.

The traveling storekeeper, working under the direct supervision of the general storekeeper, is charged with the carrying out of the policies of storekeeping as outlined by the general storekeeper. He should be thoroughly familiar with the desire of the head of his

department and see that each storekeeper has a correct understanding of the methods and practices required, and that the policies are properly carried out.

He should recognize and develop ideas of merit for improve-

ment in methods and service; fitting them for application to the department. He should submit new ideas to the supply agent in a concise form, explaining benefits to be derived and changes that will be necessary in the methods in use, for the good of the department. He should see that departmental policies and practices function properly, promote the extension of co-operative effort of the stores department personnel, investigate and endeavor to eliminate all misunderstandings within the department or with other departments, that may hinder or affect the efficiency of operation. In other words, he is the personal representative of the general storekeeper on occasions demanding special attention.

He should go into the details of the actual packing, shipping, receiving and storing of material, seeing that it is packed so as to avoid breakage or damage, while in transit or in handling at destination. It is his duty to see that shipments are loaded in a compact and secure manner, and where practical insist on all cars being loaded to capacity to avoid keeping equipment out of revenue service for the transportation of company material.

When shipments arrive at destination he should see that same are unloaded immediately, unpacked and stored in the proper space and in such manner as to avoid damage by improper piling or exposure to the elements. In order that each store will handle in a uniform and economical manner, the traveling storekeeper should build his plans universally, giving his entire territory the benefit of his experience.

The traveling storekeeper must consider it as his duty to see that all buildings and yards are kept clean and orderly, that the rubbish is not allowed to accumulate in dark corners or out-of-the-way places. The interior of buildings should not be permitted to become dirty or smudge marked, employees may easily be taught to take pride in keeping the cases in a clean and orderly manner. Clean buildings and convenient storage facilities promote satisfied employees and will cause them to take a certain pride in their job. This is the spirit needed in the store department, as it leads to well cared for and orderly stocks. One of the most important duties of the traveling storekeeper is to see that finished products stored in the open are properly protected with paint to prevent deterioration from corrosion. Storage facilities must also be included in this inspection so that repair work is done when needed and when it can be accomplished at a minimum cost.

Eliminate Expensive Handling Methods

Economy is the watchword of the railway store, consequently, it should figure in every operation, storekeepers and their forces should be on the alert to eliminate expensive methods of handling materials. The traveling storekeeper should investigate and report to the general storekeeper labor saving devices with the view of reducing handling costs to the lowest possible figure. It is his duty to keep forces assigned so there is no surplus of help, but at the same time see that sufficient forces are available for the carrying out of work promptly and efficiently.

The capital investment in material and supplies is a paramount issue of railroad management and demands the constant study of every store employee to keep this investment to the smallest amount and to have on hand when required proper and sufficient material to repair equipment, roadway and buildings. Here again, the traveling storekeeper should engender in all the importance of this and create a desire to know the material requirements in the fullest detail. He should be the mentor of all, be able to give advice and render decisions on quantities of material required for special purposes, to quickly analyze unusual conditions and take action necessary to care for emergency requirements.

Coming in daily contact with the heads of the using departments, he can get intelligent forecasts on requirements. By taking advantage of these forecasts, he can have materials on hand when needed and in quantities required, avoiding expensive substitution, delay to work in operating departments and the withholding of equipment from service.

He should, as far as possible, be familiar with working conditions that have to do with prompt or slow delivery of materials in order to forecast possible time required for delivery of special materials, that material will be on hand when required and not several weeks or months before needed.

Watch Surplus Material

Material and supplies over the current requirements of store, shops or roundhouse are surplus, and represent an unnecessary investment of the railroad's funds if allowed to remain in stock at the point not required, and the traveling storekeeper should have all material that is surplus returned to source of supply and as far as possible should take the necessary measures to avoid material becoming surplus by cautioning all against excessive orders. When power is assigned to other territory he should make it his duty to see that material is transferred. By conferring frequently with other department heads in regard to items

carried for protection of emergency repairs to equipment he can regulate material shipments, eliminating many shortages at the general store.

The traveling storekeeper should check the stock books at each store at regular intervals and items of material that the store check show are not moving should be investigated, and if found not required, it should be immediately disposed of; also, when checking stock books test checks should be made to determine if accurate monthly inventories are being made.

The Opportunities for the Stores Department

Now we come to the question of opportunities. The opportunities of the stores department should tend to develop it into a really efficient factor of railroad operation. Through the efforts of the traveling storekeeper, then, who is thoroughly familiar with the minor operation of this department, these opportunities are picked up day by day, and passed on to his superior officer for enlargement and perfection. How do we know these opportunities when we encounter them? If you have experienced the day when everything you undertook slipped easily and noiselessly into its groove and you ended up with a perfect day, you no doubt commented upon it in your own mind, and, right there a brand new idea popped up. Perhaps it suggested only a slight saving, really worth only a few cents per day; yet, taking the line as a whole, it meant several hundred dollars. By advancing the idea to all the railroads, it would mean a saving of thousands of dollars annually.

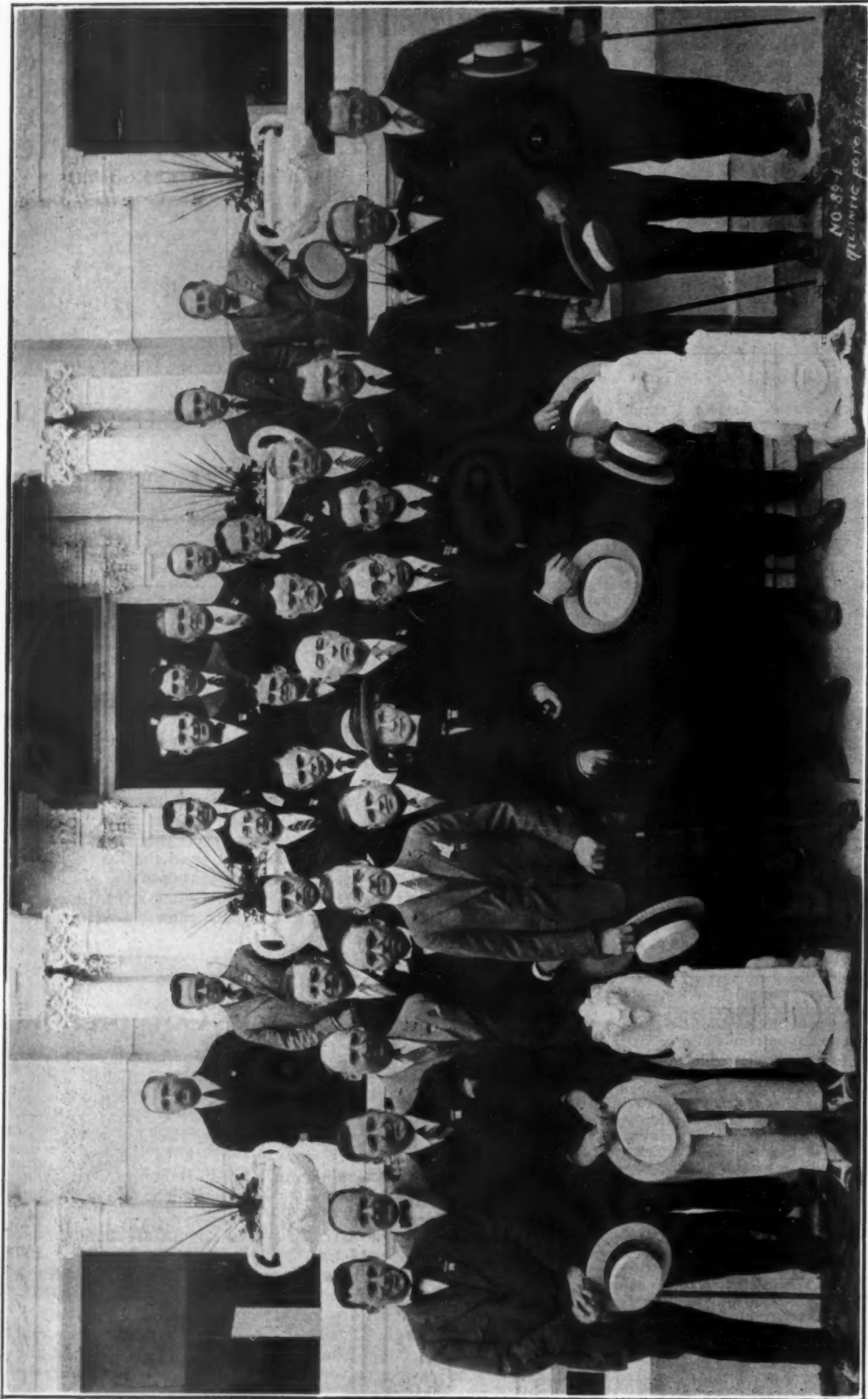
The faculty of capturing and forwarding ideas then, no matter how small, are the real opportunities that come from close application to duty. The traveling storekeeper should get into the habit of giving work to these ideas in an every day matter of fact way, when he makes his report to the general storekeeper, who is no doubt interested in getting together material facts that will enable him to weld solidly together the weak links in the chain, that leads to the perfect method of dispensing company material; a method that will eliminate waste, embody accurate accounting, lower costs of overhead, decrease amount of handling and over supply; then, he has contributed to a stores department that which is recognized as indispensable to economic railroad operation.

Pullman Accommodations

PERSONS DESIRING Pullman accommodations on the special train leaving Atlantic City for Chicago on Wednesday at 3:50 p. m. eastern standard time, 4:50 p. m. daylight-saving time, should take notice that as notified on their reservations their space must be taken up this (Tuesday) morning or reservations will be canceled. The passenger representative of the Pennsylvania Railroad, C. A. Cratzer, is authority for the statement that several cars are being held in readiness for those who have made reservations, but they cannot be held later than today noon.

Federated Metals Corporation

ANNOUNCEMENT IS made through financial channels of the proposed organization of the Federated Metals Corporation to acquire the business and substantially all of the assets of the Great Western Smelting & Refining Co., Duquesne Reduction Co. and the non-ferrus metal business of B. Lissberger & Co., including the Union Smelting & Refining Co., Trenton Smelting & Refining Co., and The Eagle Smelting and Refining Works. These companies have been engaged for nearly 30 years in metal refining, including copper, brass, lead, tin, zinc and white metal alloys and in merchandizing such products to the extent that annual combined sales have averaged over \$38,000,000. Refineries are located in Newark and Trenton, N. J., Pittsburgh, Detroit, Chicago, St. Louis, Seattle and San Francisco. The combination, it is said, will be the largest refiner of non-ferrus secondary metals in the United States.



Entertainment Committee

Bottom row, left to right: Webb G. Krauser, Union Draft Gear Company; S. Worcester Sargent, American Steel Foundries; N. C. Naylor, Railway Steel Spring Company; H. A. Varney, Sunbeam Electric Manufacturing Company; J. Cizek, The Leslie Company; Arthur N. Dugan (vice-chairman), Bronze Metal Company; Oscar C. Hayward, Williams-Hayward Company; Mrs. A. Fenton Walker, Canadian Railway and Marine World; C. W. Floyd Coffin (Chairman), Franklin Railway Supply Company, Inc.; J. H. Van Moss, Pennsylvania Car Company; R. J. Himmelright, American Arch Company; Charles L. Brown, Manning, Maxwell & Moore, Inc., and L. J. McCombs, The Patterson Sargent Company.

Middle row, left to right: W. M. Wilson, Flannery Bolt Company; Philip L. Maury, Detroit Graphite Company; H. A. Pastre, Elliott Company; Langley Ingraham, The Lowe Brothers Company; Lewis B. Rhodes, Vapor Car Heating Company; D. L. Eubank, Galena-Signal Oil Company; J. W. Fogg, Boss Nut Company; Carter P. Whitcomb, Griffin Wheel Company, and George E. Watts, The Duff Manufacturing Company.

Top row, left to right: S. B. Wright, Jr., Standard Steel Car Company; W. A. Hicks, Pennsylvania Iron & Steel Company; Joseph A. Renton, The Kerite Insulated Wire & Cable Company; Arthur G. Johnson, Atmospear Manufacturing Company; Fred W. Venton, Crane Company; H. A. Matthews, U. S. Light & Heat Corporation; Leslie R. Pyle, Locomotive Firebox Company; Stanley L. Bateman, The Parkesburg Iron Company, and Joseph R. Wetherald, The Champion Rivet Company, Philadelphia, Pa.

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Pennsylvania Exhibits Standard Cars

Double-Sheathed Box and Automobile Cars; Single-Sheathed Frame Finished for Stock Loading

THE PENNSYLVANIA has assembled an exhibit on the Georgia Avenue track which shows concretely what has been accomplished by the Car Construction Committee in the proposed standard box car designs, successfully completed last year.

The exhibit includes five cars. One is a completed standard double-sheathed steel box car. Another shows a skeleton of the steel construction of the same car with the interior lining and part of the floor removed so that all of the steel details can be clearly seen. There are two stock cars the frames of which are built to the standard single-sheath design, one completed, with double deck arrangement, and the other skeletonized so that the steel construction is completely exposed. The fifth car is an automobile box car, of greater height and with a wider door opening than the standard car. Inside of each of the cars are full size pieces of the new center and side sill sections adopted by the Mechanical Division and incorporated in the new standard car designs. Both the Style W and the Style Y proposed standard trucks are also represented.

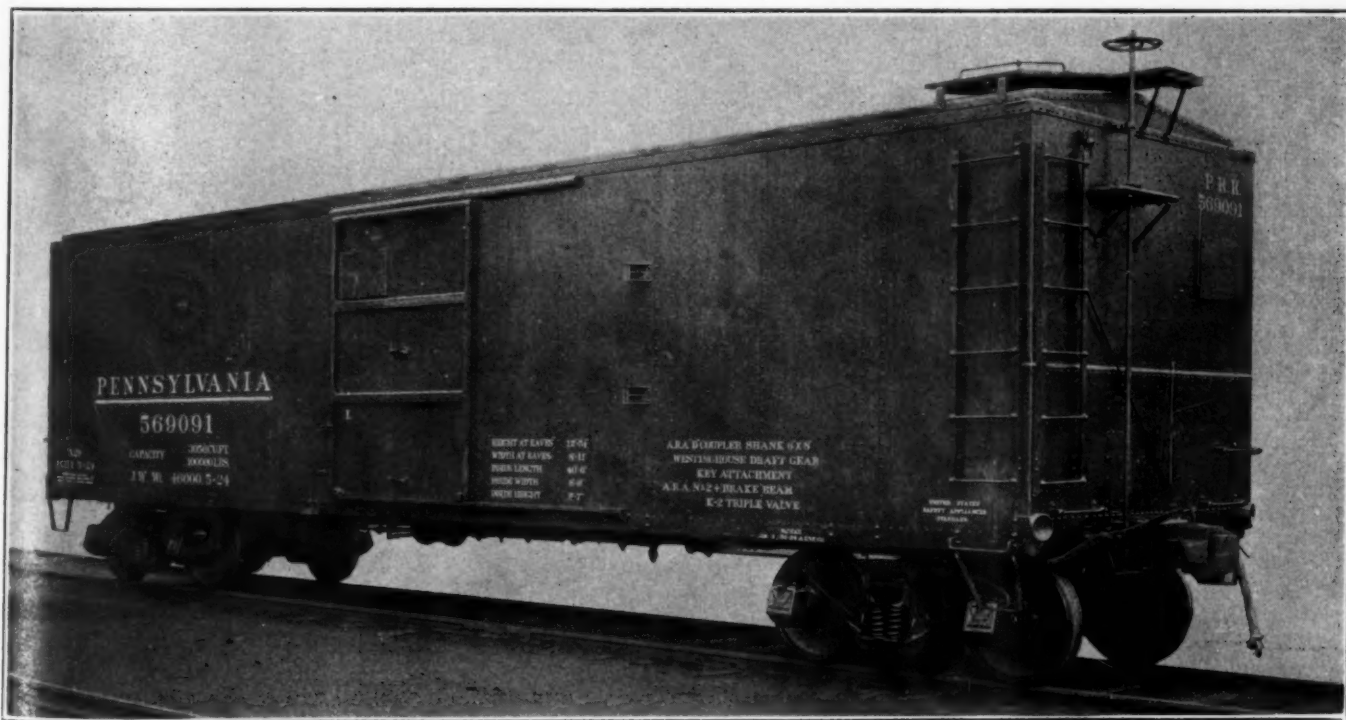
These cars form a notable exhibit from several aspects. In the first place, they offer the first opportunity to examine the standard designs as completed structures, from which their outstanding features and advantages are much more readily apparent than from an examination of the drawings. Again, they are an evidence of good faith in the standard car project which, no doubt, will be shown by other railroads as fast as opportunity offers.

One of the impressive facts concerning these cars is

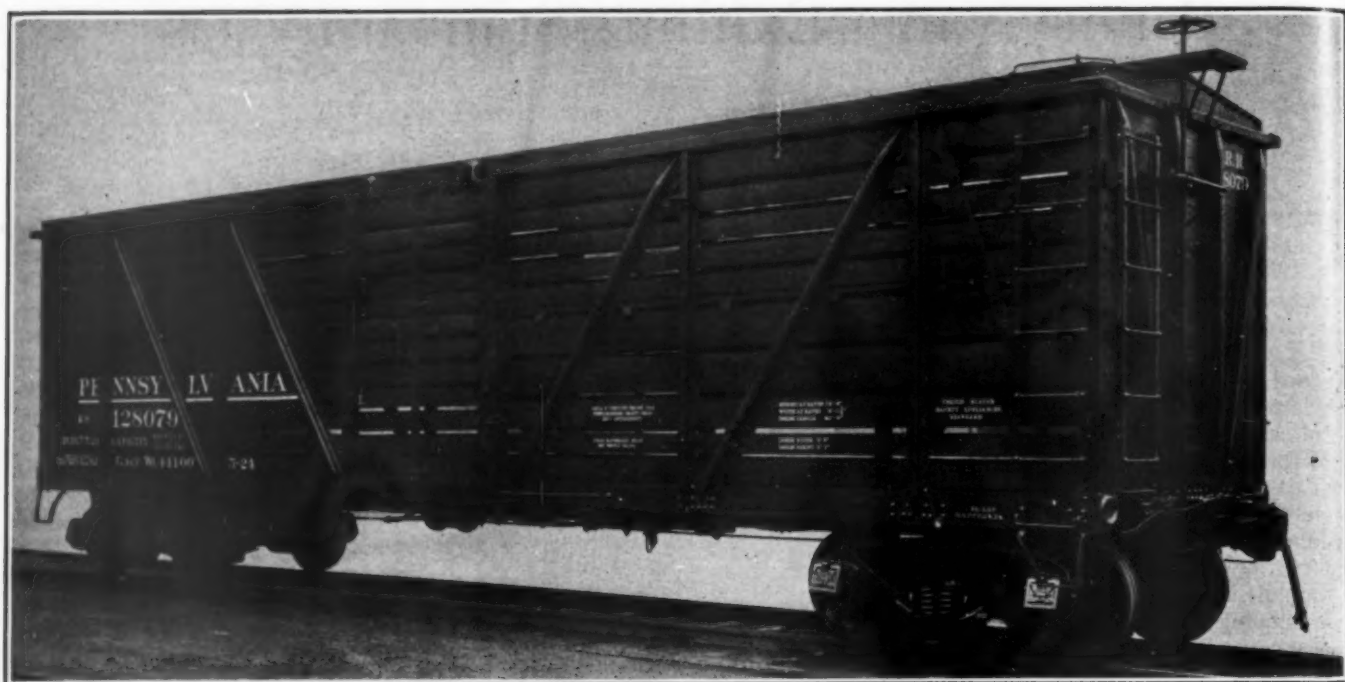
their light weight. With one exception, in their construction the Pennsylvania has adhered strictly to the Car Construction Committee's designs, using none of the alternates provided for in the specifications. The one exception lies in the fact that one of the cars is carried on arch bar trucks. The double-sheathed steel car, equipped with Type Y trucks, weighs 46,000 lb. This car is 8 ft. 7 $\frac{3}{8}$ in. high, 8 ft. 9 $\frac{1}{8}$ in. wide and 40 ft. 6 in. long inside. The Pennsylvania Class X-25 all-steel box car, which is 9 ft. 1 in. high, 8 ft. 10 $\frac{7}{8}$ in. wide and 40 ft. 5 $\frac{3}{4}$ in. long, is 3,100 lb. heavier, weighing 49,100 lb. The U. S. A. A. standard single-sheathed box, which is 9 ft. high, 8 ft. 6 in. wide and 40 ft. 6 in. long, weighs 47,300 lb.—1,300 lb. heavier.

What has been done in reducing the weight of the trucks is clearly shown by the comparison of the weight of the car with the Style Y trucks and with arch bar trucks; the latter added 520 lb. to 600 lb. to the weight of the car.

The automobile car, while not one of the standard designs, shows the adaptability of the standard double-sheathed design. The height of these cars has been increased from the standard dimension to 9 ft. 3 $\frac{1}{4}$ in. and the door opening increased from 6 ft. to 10 ft. Except for the changes in panel spacing and length of the frame members made necessary by these changes, the construction conforms to the proposed standard design. For convenience of automobile shippers, rings are attached at intervals to the plates along the sides of the car, to which chain blocks may be hooked. The cars are fitted with the American steel door, which is built in two sec-



Pennsylvania Double Sheathed Box Car Built to the Proposed Standard Specifications



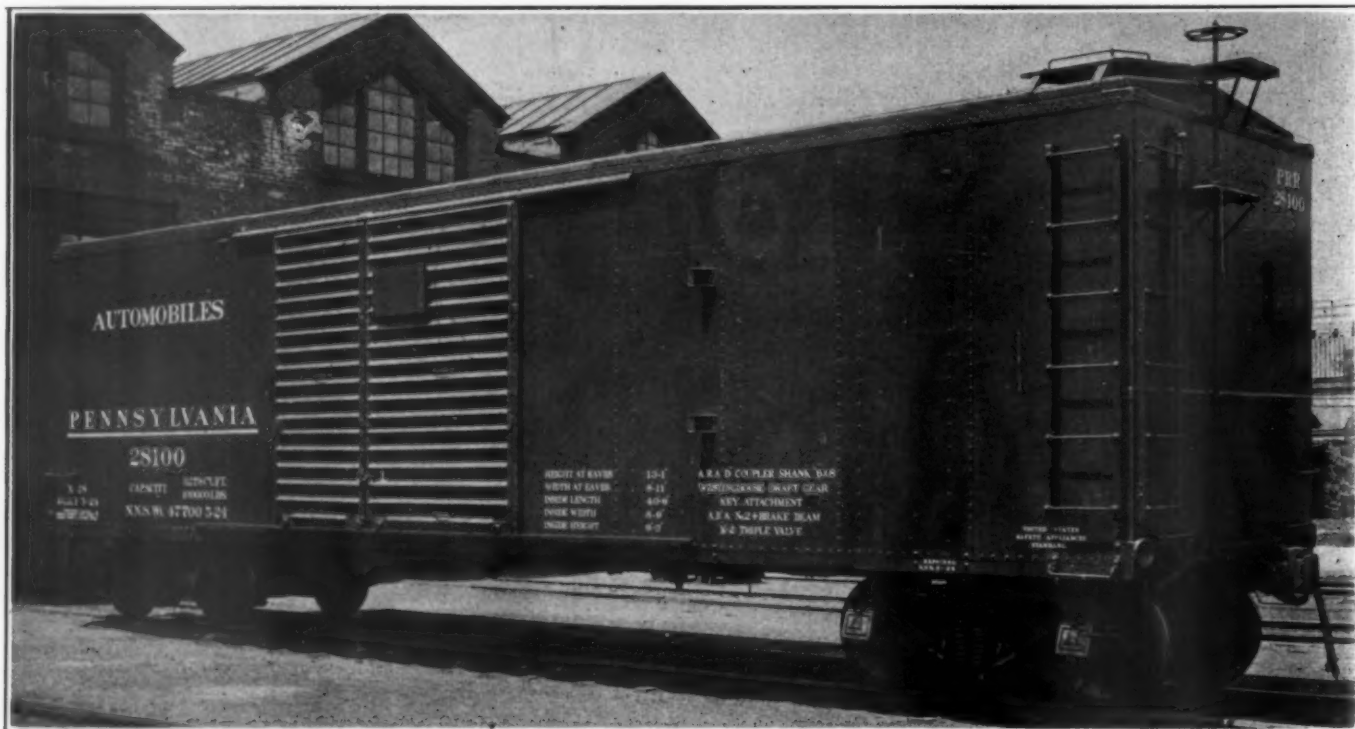
The Standard Single Sheathed Design Finished as a Double Deck Stock Car

tions, one to close a 6-ft. opening and the other to close a 4-ft. opening. The 4-ft. door is locked on the inside by a cam fastener attached to the post and is fitted with a nailing strip at the inside edge so that it may be lined when the car is to be used for other than automobile loading. This is the type of construction advocated by automobile manufacturers to make available a larger supply of cars than could economically be provided for exclusive use in automobile carrying service.

The adaptability of the double-sheathed steel car design is indicated by the light weight of these cars as compared with other automobile cars. Arranged for auto-

mobile loading and equipped with arch bar trucks, these cars weigh 47,800 lb. Equipped with Style W trucks, with separable journal boxes, but with the 4-ft. doors sheathed inside, they weigh 47,700 lb. The Pennsylvania classes X-24 and X-25-A automobile cars with inside dimensions differing only slightly from the modified A. R. A. design, weigh 49,000 lb. and 52,000 lb. respectively.

The stock cars, which differ in the interior lining arrangement from the A. R. A. single-sheathed box car design, have the standard roof frame construction, finished with a single board roof, and are fitted with an



A Modification of the Arrangement of the Standard Double Sheathed Body Frame Details Was Used in the Design of the Automobile Car

upper deck. The car carried on the Style Y trucks weighs 44,100 lb.; carried on arch bar trucks, the weight is 44,700 lb. The Pennsylvania Class K-7 stock car, which is only 8 ft. high and 40 ft. long, weighs 47,800 lb. Actual weights of both styles of trucks are not available. The Style W truck, with separable boxes, weighs 7,750 lb. each and the weight of the Style Y truck, with integral boxes, is estimated at 7,675 lb. The comparable arch bar trucks weigh 8,000 lb.

One of the reasons for the light weight of the cars is apparent from an inspection of the standard center and side still sections. These complete integral sections elim-



The Proposed Standard Style W Truck

inate the waste material always included in built-up riveted sections. They are now commercially obtainable from the Carnegie Steel Company and the Illinois Steel Company.

Extensive orders have been placed for cars of these designs. A total of 8,000 double-sheathed steel box cars are now being built, 1,000 by the Bethlehem Steel Corporation, 2,000 each by the American Car & Foundry Company and the Pullman Company, and 3,000 by the Pressed Steel Car Company. Orders for 3,000 of the automobile cars are being built, 2,000 by the Standard Steel Car Company and 1,000 by the Newport News Shipbuilding and Dry Dock Company. Five hundred each of the stock cars are being built by the General American Car Company and by the Illinois Car & Manufacturing Company.

New Mechanical Division Officers

AT THE annual election of officers of the Mechanical Division yesterday morning, John J. Tatum, superintendent of the car department of the Baltimore & Ohio, was elected chairman, and James T. Wallis, chief of motive power of the Pennsylvania System, vice-chairman.

Mr. Tatum has headed up the car department of the Baltimore & Ohio for many years and is noted for the efficient and constructive way in which he has administered that department. He also rendered noteworthy service during the Railroad Administration as manager of the Car Repair Section. Mr. Tatum, except for the time he was stationed at Washington with the Railroad Administration, has spent all of his life in Baltimore, having been born there September 17, 1866. He was

educated in the public schools of Baltimore and entered the service of the Baltimore & Ohio as a messenger at the Mt. Clare shops, September 17, 1879. Two years later he became an apprentice in the car department, spending one year after finishing his apprenticeship as a mechanic in the car department. In the years immediately following he steadily advanced through the position of supervisor of airbrake equipment, supervisor of steam heat equipment, assistant foreman and then foreman of the passenger car erecting shop, and general foreman of the passenger terminals at Baltimore. In 1900 he was made chief inspector of new car equipment, and from 1902 to 1907 was general foreman of the car department at the Baltimore terminals and shops, and from 1907 to 1918, superintendent of the freight car department for the entire system. On April 1, 1918, he was appointed manager of the Car Repair Section of the United States Railroad Administration, Washington, D. C., and also a member of the Committee on Standards of the Railroad Administration. He returned to the service of the Baltimore & Ohio as head of the car department of that system, March 1, 1920. Mr. Tatum has been an extremely active member of the Master Car Builders' Association



John J. Tatum, the New Chairman of the Mechanical Division

and its successor, the Mechanical Division. His election as chairman of the division is a well merited honor.

Mr. Wallis comes from the South, having been born in New Orleans June 11, 1869. He was educated at the University of Louisiana, Georgetown College, and then came North and was graduated from Stevens Institute of Technology, in 1891. His entire railroad experience

has been with the Pennsylvania System. He entered the service of that company September 16, 1891, serving as a machinist at West Philadelphia, assistant road foreman of engines of the P. B. & W., assistant master mechanic of the New York Division, and assistant master mechanic of the machine shop at Altoona. On July 1, 1900, he was appointed assistant engineer of motive power in the office of the general superintendent of motive power. Following this he was made master mechanic of the Baltimore Division of the Northern Central Railroad and then master mechanic of the Philadelphia terminal divi-



James T. Wallis, the New Vice-Chairman

sion. He was appointed superintendent of motive power of the Erie division and Northern Central Railroad, April 1, 1907. In May, 1911, he became superintendent of the West Jersey & Seashore. He returned to the motive power department, January 1, 1912, as general superintendent of motive power of the lines east of Pittsburgh, and on March 1, 1920, succeeded to his present position as chief of motive power of the Pennsylvania System. Mr. Wallis, like Mr. Tatum, has been extremely active in the work of the Mechanical Division and its predecessors for many years. He has not only worked hard himself, but has headed up a group of his associates who have given a remarkable account of themselves on the various committees. The track exhibit of the standard A. R. A. cars by the Pennsylvania Railroad is illustrative of the constructive interest that Mr. Wallis has taken in the work of the Mechanical Division.

There is little doubt but what the new officers will carry forward the constructive and aggressive program which has been inaugurated by Chairman Purcell and which means so much for the future of the organization.

Registration, American Railway Association

Division V—Mechanical

Abbott, R. B., Asst. Genl. Supt., P. & R., Ritz-Carlton.
Adams, C. S., Div. G. F., N. Y. C., Pennhurst.
Adamson, E. A., M. C. B., C. of Ga., Haddon Hall.
Alexander, Walter, V. P., Union Ref. Trans. Co., Brighton.
Anderson, A. L., G. C. F., L. I., Marlborough.
Armer, A. M., M. M., N. Y. C., New England.
Averill, E. A., Ambassador.
Bachert, Wm. H., For., L. I.
Baker, Geo. T., G. C. I., Penna., Worthington.
Baldinger, F. A., M. M., B. & O., Clarendon.
Balda, F. E., Asst. to Mech. Mgr., N. Y., N. H. & H.
Barr, L. S., Mech. Supt., L. P. T. Co., Shelburne.
Beacom, T. H., Receiver, D. & R. G., Marlborough.
Beaghen, Thos., Jr., M. C. B., Mex. Pet. Co., Traymore.
Becherer, F. H., G. C. I., B. & M., Chelsea.
Best, H. E., M. C. B., Chi., N. Y. & Bos. Ref., St. Charles.
Blake, F. H., Insp., Penna., Craig Hall.
Borer, F. J., Asst. G. F., C. of N. J., Lyric.
Boring, T. J., G. F., Penna., Craig Hall.
Boyd, J. W., Supvr. Welding, B. & O., Haddon Hall.
Boyer, Chas. E., G. C. I., Penna., Runnymede.
Boyer, L. K., G. F., B. & A., Pennhurst.
Brenaman, H. A., Asst. Wks. Mgr., Penna., Traymore.
Brown, Edw. L., G. C. F., S. I. R. T., Traymore.
Brown, J. M., G. E. F., L. V.
Buckbee, E. J., M. M., C. C. C. & St. L., Traymore.
Burke, Leo, M. C. B., M. & St. L., Traymore.
Calkins, A. E., Supt. Rolling Stock, N. Y. N. H. & H., Traymore.
Carlton, E. T., Ch. C. I. L. I., Strand.
Carson, C. E., Dist. M. C. B., N. Y. C., Dennis.
Carty, F. J., Mech. Eng., B. & A., Shelburne.
Case, T. G., G. F., N. Y. C., Pennhurst.
Caswell, W. H., Ch. Mech. Insp., N. Y. N. H. & H., Monticello.
Caton, S. W., M. C. B., W. M., Traymore.
Campbell, R. C., Genl. Frt. Agt., P. & R.
Cheadle, T. S., Ch. C. I., R. F. & P., Runnymede.
Coe, T. W., M. M., N. Y. C. & St. L., Knickerbocker.
Colbert, J. T., Genl. Supt., P. & S., Marlborough.
Cole, M. P., Dist. Car Insp., B. & M., Chelsea.
Conahan, C. V., M. M., L. V., Iroquois.
Connal, W. F., Mech. Eng., C. N. W., Chalfonte.
Calder, W. W., Dist. M. C. B., B. & O., Haddon Hall.
Cotton, W. A., Mech. Asst., Erie, Marlborough.
Courson, J. F., G. F., Penna., Seaside.
Cox, G. W., Asst., Ch. Draftsman, N. Y. C.
Crandall, A. B., Ch. Draftsman, A. C. & Y., Albion.
Craig, James, Supt. Car Main, B. & M., Chelsea.
Culber, C. W., Wks. Mgr., C. of N. J., Brighton.
Cunningham, J. L., S. M. P., Penna., Chelsea.
Davis, W. R., M. M., Penna., Ambassador.
De Moyer, John W., Div. Eng., A. C.
Demarest, T. W., G. S. M. P., Penna., Brighton.
Dickinson, C. M., Elect. Eng., R. F. & P., Traymore.
Dickinson, F. W., M. C. B., B. & L. E., Haddon Hall.
Ditmore, G. W., M. C. H., D. & H., Marlborough.
Doke, G. E., Eng. Tests, N. Y. C., Traymore.
Downs, J. T., Supt. R. S., M. C., Haddon Hall.
Edwards, H. P., G. M., A. & W., Princess.
Ernst, W., Asst. Eng., N. Y. C.
Farley, J. A., Asst. to Ch. Mech. Off., C. & O., Chalfonte.
Farrington, F. B., Asst. Wks. Mgr., Penna., Traymore.
Flanagan, M., M. M., C. & O., Lwellyn.
Flinn, R. H., M. M., Penna., Craig Hall.
Foltz, T. F., Elect. Eng., Wash. Term'l.
Fromm, A. B., M. M., I. H. B., Princess.
Fritts, J. C., M. C. B., D. L. & W., Traymore.
Fryer, C. V., G. F., N. Y. O. & W., Breakers.
Gelhausen, F. R., M. M., B. & O., Haddon Hall.
Giesey, W. R., For., Penna.
Gibboney, J. H., Chemist, N. & W., Haddon Hall.
Gillis, H. A., Mech. Engr., Seaside.
Good, G. W., Supt. Shops, M. C., Princess.
Goodwin, E. L., Asst. to Mech. Supt., Pullman Co., Dennis.
Grimshaw, F. G., S. M. P., Penna.
Grow, J. T., Asst. Dist. M. C. B., N. Y. C., Dennis.
Gullage, Jos., G. F. Car Shops, B. & M., Chelsea.
Halbert, M. W., C. I. L., Haddon Hall.
Hanlin, J. J., S. M. P., S. A. L., Princess.
Harding, C. R., Cons. Eng., S. P., Ritz-Carlton.
Harding, E. N., Gn. Mech. Insp., C. of N. J., Chelsea.
Hark, O. F., M. M., N. & W., Haddon Hall.
Hartley, Geo. B., V. P., Hydre Asphalt Prod. Co., Dennis.
Harvey, H. H., G. C. F., C. B. & Q., Chelsea.
Hauth, W. A., Car For., Penna.
Hawkins, R. D., G. S. M. P., A. C. L., Ambassador.
Hayes, C. J., Trav. A. R. A., Supvr., N. Y. C., New England.
Heald, W. E., Supt. Constr., B. & O., Shelburne.
Hengstler, David, G. F., Penna.
Henry, J. M., G. S. M. P., Penna., Chelsea.
Hildreth, F. F., Asst. Eng., M. P., Penna., Craig Hall.
Hill, F. J., Ch. Elec., M. C., Princess.
Hitch, C. M., Dist. M. C. B., B. & O., Haddon Hall.
Hoffman, G. P., G. C. F., B. & O., LaMarne.
Howe, John, Supt. of Shops, B. & O., Marlborough.
Howell, F. P., S. M. P., Penna., Knickerbocker.
Hurst, W., Shop & Tool Specialist, N. Y., N. H. & H., Shelburne.
Jennings, Raymond J. K., G. F., C. N. E., Ambassador.
Johnston, J. O., G. C. F., Southern, Fredonia.
Johnston, C. S., Est. Eng., A. T. & S. F., Ambassador.
Jones H. W., M. M., Penna., Traymore.
Justus, I. J., Spec. Inspector, N. Y. C., Pennhurst.
Kayes, R. W., Asst. to Eng. Tests, N. Y., N. H. & H., Ambassador.

Keeg, C. O., G. F., Penna., Strand.
 Keppelman, S., G. C. I., P. & R., Ritz-Carlton.
 Kiesel W. F., Jr., Mech. Eng., Penna., Chelsea.
 Kilmer, C., Trav. Car Rep. Accountant, B. & O., Knickerbocker.
 King, W. H., Jr., Asst. to V. P., S. A. L., Ambassador.
 Kipp, A., G. C. I., N. Y. O. & W., Shelburne.
 Kirchner, R., M. C. B., S. & A., Strand.
 Kirkendall, A., R. F. E., C. of N. J.
 Kline, B. W., Asst. M. M., Penna.
 Kochbrich, F. W., For., L. I. Shelburne.
 Kyle, A. R., Supt. Recl. Plant, Virginian.
 Laux, J. P., Shop Supt., L. V., Traymore.
 Lawhon, A. M., M. M., Southern, Shelburne.
 Leopold, A. L., G. F., N. Y., N. H. & H., Chalfonte.
 Lindner, W. C., Ch. C. I., Penna., St. Charles.
 Long, P., Shop. Insp., B. & O., Kenderton.
 Lotz, Harry B., M. M., Penna., Byron.
 Love, H. G., Shop Supt., G. T. W., Marlborough.
 Lyon, A. G., Trav. A. R. A. Supvr., N. Y. C., New England.
 Maddox, Paul, Supt. Car Dept., C. & O., Haddon Hall.
 Madison, J. O., Engr. Car Equip., I. R. T., Traymore.
 Mahl, F. W.
 Markland, A. R., Insp., Penna.
 Markland, W. H., Genl. Shop Insp., Penna.
 Mattingley, E. H., Marlborough.
 McCowan, A., Asst. Gen. Supt. Car Equip. C. N. R., Ritz-Carlton.
 McCoy, G. E., Supt. Car Equip., C. N. R., Traymore.
 McDonnell, M. E., Ch. Chem., Penna.
 Mechling, J. E., Spec. Insp., Penna., Craig Hall.
 Meckstroth, G. F., B. & O., Knickerbocker.
 Meister, C. L., Mech. Eng., A. C. L., Chalfonte.
 Mengel, J. C., M. M., Penna., Marlborough.
 Merrill, F. A., Trav. Car Rep. Acct., B. & O., Knickerbocker.
 Michael, L. P., Mech. Eng., C. & N. W., Knickerbocker.
 Middaugh, W. H., G. F., Erie, Pennhurst.
 Moll, George R., F. E., P. & R., New England.
 Moncure, A. H., G. C. F., R. F. & P., Princess.
 Monroe, John T., Shop Supt., Erie, Pennhurst.
 Moores, G. O., Asst. Eng., B. & O., Normandy.
 Moss, F. B., Asst. M. M., C. & O., Breakers.
 Muhlfeld, J. E., Cons. Eng., K. C. S., Ambassador.
 Mullen, N. V., M. M., Penna.
 Nelson, F. W., M. M., N. Y., N. H. & H., Ambassador.
 Nystron, K. F., Eng. of Design, C. M. & St. P., Traymore.
 O'Meara, J. W., Supt. Shops, N. Y. N. H. & H. Richmond.
 O'Meara, Wm. J., R. F. Elec. Loco., N. Y., N. H. & H., Pennhurst.
 O'Neal, James, G. C. F., G. M. & N., Haddon Hall.
 O'Neill, W. J., G. M. S., D. & R. O., Marlborough.
 Ortlieb, J. J., Elect. Insp., L. I.
 Patten, G. F., Shop Insp., B. & O., Knickerbocker.
 Pattison, Hugh, Engv. Elec. Traction, Virginian.
 Peck, F. S., Dist. Storekeeper, C. M. & St. P., Haddon Hall.
 Perry, M. R., Ch. Trav. Car Acct., B. & O., Kenderton.
 Poole, E. P., Supvr. of Shops, B. & O., Shelburne.
 Porter, S. E., M. M., A. C. L., Knickerbocker.
 Quinlan, F. T., Eng. Test., N. Y., N. H. & H., Ambassador.
 Quinn, J. H., G. F., Penna., New Holland.
 Ramage, J. C., Eng. of Tests, Southern, Palm Hall.
 Reed, James, Dist. M. C. B., N. Y. C., Traymore.
 Retterer, R. W., Mech. Engr., C. C. C. & St. L., Traymore.
 Reynolds, Chas. T., G. F., B. & M., Chelsea.
 Reusch, H. E., Asst. C. C. I., C. of N. J., Princess.
 Richards, C. F., C. C. I., L. & H., Princess.
 Riggs, J. R., M. M., Penna., Marlborough.
 Ritter, O. H., M. M., N. Y., N. H. & H., Ambassador.
 Romanach, Juan, Loco. & Car Supt., Cuba Cane Sugar Corp., Chelsea.
 Root, Jos. J., Jr., Mech. Engr., Union Tank, Ritz-Carlton.
 Rudolph, J. R., G. A. B. I., L. I., Shelburne.
 Ryan, J. M., G. C. I., C. St. P. M. & O., Haddon Hall.
 Safford, H. R., V. P., C. B. & Q., Traymore.
 Sasser, J. W., S. M. P., Virginian.
 Saver, J. T., Asst. Eng., N. Y. C., Traymore.
 Scheifle, John, R. F. E., P. & R., New England.
 Schuyler, A. J., G. C. I., Virginian, Princess.
 Seidel, Wm. H., P. & R.
 Sellman, F. E., M. M., Penna., Chalfonte.
 Seyver, C. J., Asst. to S. M. P., W. M., Westminster.
 Sharpe, W. D., G. F., N. Y., N. H. & H., Windsor.
 Sharples, P. E., Elec. Eng., Virginian.
 Sheedy, J. A., M. M., Penna., St. Charles.
 Siegfried, M. A., Asst. R. F. E., C. of N. J.
 Simpson, F. C., M. M., Southern, Shelburne.
 Simms, H. A., Mech. Supt. Car Equip., Ky. Exp., Chalfonte.
 Sitterly, W. H., G. C. I., Penna., Marlborough.
 Smart, G. E., Ch. of Car Equip., C. N. R., Traymore.
 Smith, Abram E., V. P., Union Tank, Ritz-Carlton.
 Smith, H. J., G. C. I., D. L. & W., Sterlitz.
 Smith, R. P., Mech. Eng. A. & W. P., Schlitz.
 Spoor, C. E., M. C. B., B. & S., Shelburne.
 Starkweather, L. A., R. H. F., Penna.
 Stevens, M. R., Secy. to Receiver, D. & R. G., Marlborough.
 Stork, W. A., G. C. F., L. V.
 Stroch, E. F., Shop Supt., M. P., Ambassador.
 Stull, Howard W., Mach. Shop For., P. & R., Hamilton.
 Tait, Edwin E., Prs., P. & S., Marlborough.
 Taylor, S. O., M. C. B., M. P., Marlborough.
 Thompson, W. O., G. S. R. S., N. Y. C., Traymore.
 Thorn, W. H., M. C. B., C. S. & P. M. & O., Haddon Hall.
 Tiley, George E., Supvr. Tank Car Equip., Gen'l. Chem. Co., Ritz-Carlton.
 Toomey, John J., A. R. A. Insp., A. & W. P., Schlitz.
 Toomey, T. H., G. F., Penna.
 Train, A. H., Spec. Eng., N. Y. C., Shelburne.
 Trapnell, F. W., C. I. L., Haddon Hall.
 Waring, F. M., Eng. Tests, Penna.
 Webb, E. R., M. M., M. C., Haddon Hall.
 Weigman, F. H., Supvr., A. R. A. Inter., L. & N., Shelburne.
 Wescoe, F. B., Ch. C. I., Penna.
 Westall, W. T., Spec. Insp., N. Y. C., Traymore.
 White A., G. R. F. E., Southern, Shelburne.
 White, C. A., Supt. Shops, A. C. L., Knickerbocker.
 Willcox, L. G., Shop Insp., B. & O., Knickerbocker.
 Willoughby, Victor, Traymore.
 Winter, P. G., Mech. Eng., C. M. & St. P.
 Wolfe, Robert C., Gen. Eff., D. & H., Pennhurst.
 Woody, E. R., M. M., C. & O., Knickerbocker.

Conventionalities

The Atlantic City weather man apparently has relented at last. For two days now he has given a chance to the boys who brought their white pants along.

Mrs. R. H. Weatherly joined Mr. Weatherly at the convention Saturday. They are planning, soon after they return to New York, to sail for Europe for a few weeks' trip.

The Santa Fe delegation were greatly shocked Saturday afternoon when J. K. Nimmo, master mechanic at Arkansas City, was called back to Chicago because of the sudden death of his son, a young man about 21.

In a mention in an earlier issue of a number of life members present there should have been included the name of A. C. Deverell, formerly of the Great Northern, who this year is registered with the Standard Car Truck Co. of Chicago.

From far Australia comes W. L. Fanning, works manager Australian Oxygen & Industrial Gases Pty, Ltd., of Melbourne, to say that the display at this convention in the line in which he is specially interested is ahead of anything of the sort he has ever seen.

George R. Carr is not accompanied to the convention this year by his wife. Mrs. Carr's father, Jacob Martenson, who was one of the leading lumbermen of the United States, died recently and following his funeral she went to Colorado Springs where she will remain some time for the benefit of her health.

A striking reminder of the changing times is afforded by a cursory examination of the registration list. Although Master Car Builders' Association has been, in times past, a name to conjure with in railway equipment and M. C. B. standards still prevail, there are only fourteen members registered under that title.

Exhibitors are unanimous in declaring that the number of visitors who have thoroughly examined the exhibits has been larger and the interest manifested has been keener than at any past mechanical convention in history. That is "going some," but a trip about the Pier indicates it is true.

G. W. Kelly, blacksmith foreman of the Central Railroad of New Jersey at Elizabethport, is the proud father of two sons who are attending the convention this year. Phillip M. Kelly is a mechanical inspector on the C. R. R. of N. J., and Walter A. Kelly is with The Watson-Stillman Company; he was one of the A. R. M. A. scholarship students at Stevens Institute.

Mrs. B. P. Flory, wife of the superintendent Motive Power of the New York, Ontario & Western, spent the early days of the convention here with Mr. Flory, but has now returned to Middletown, N. Y., where they live, to witness the graduation of their daughter, Eleanor, from a convent school she has been attending.

R. M. Rush, Pittsburgh representation of the Torch-weld Co., has the distinction of making a hole in one on the links at Atlantic City—No. 13, 119 yds. Unfortunately, as he was playing with Mrs. Rush, her testimony cannot be used in refutation or corroboration, and the main reliance of the defense is upon a group of Long Island men teeing off at No. 14 who witnessed the feat.

Although the Badge Committee of the R. S. M. A. had apparently taken every precaution to provide enough badges for even an unusually large convention, it was evident Saturday evening that the supply would not be sufficient. Therefore 1,100 additional badges were ordered. On their arrival yesterday from New York the hardworking Enrollment Committee breathed a sigh of relief.

H. R. Safford, vice-president of the Burlington, arrived yesterday morning to attend the convention, look over the exhibit, and hear his old friend and co-worker on the Illinois Central, L. W. Baldwin, deliver his address. Mr. Safford, like Mr. Baldwin, was educated as a civil engineer, and has long been a worker in, and is a past president of, the American Railway Engineering Association.

Aside from the general interest in the proceedings which tends to keep members in the convention hall until the hour of adjournment, there are said to be some instances in which other influences are at work to keep them in their places. Among these influences are recently varnished chairs, atmosphere loaded with moisture and some degree of heat which varies with the anatomical construction of different members.

Frank A. Barbey, the well-known convention attendant from Boston who endeavors to supply the New England district with railway and mill supplies, has been delayed in getting in line this year on account of his interest in the elimination contests of candidates for the Olympic games. These contests were held in the Harvard stadium and involved the consideration of some 300 contestants in various classes of events.

The "miscellaneous bunch" referred to as rendering the musical tribute to "Jim Coleman" of the Canadian National Railways on Canadian night (Friday) was changed after the information had been given to our editor. The song was sung by John H. Thomas of the Calotex Co., but as he is a whole bunch in himself perhaps he will accept this by way of apology and forgive the word "miscellaneous."

Although he is not directly connected or concerned with exhibits of the character of those represented on the pier, W. C. Kidd, Ramapo-Ajax Corp., is an interested visitor, particularly for the reason that he has much to do with railway exhibits on a smaller scale. "Capt. Kidd," as he is widely known, is secretary of the Track Supply Association which controls the exhibit feature of the Roadmasters' Association and of the Metropolitan Track Supervisor's Club of New York.

This is the second time that E. H. Walker has appeared as representing his own company, the Walker Draft Gear Corp., though he has a record of a long series of conventions as representative of the Standard Coupler Co. Notwithstanding the arduous work of conducting the activities of a supply organization Mr. Walker always finds time for some work on the side and has for a long time been president of the Board of Education of East Orange, N. J. where he resides; he has also served a term as president of the Railway Supply Manufacturers' Association.

F. G. Grimshaw, whose promotion from superintendent of motive power Eastern Ohio division, Pennsylvania, to be general superintendent motive power Southwestern Region of the same system, was mentioned in the *Daily* of June 13 among other appointments, is meeting with one of the difficulties that sometimes confront a railway man in his upward progress. Mr. Grimshaw's new headquarters will be in St. Louis and as he is blessed with a wife and five children he is having difficulty in finding a suitable place in which to house them.

F. M. Nellis, secretary of the Air Brake Association since its organization, is proudly nearing a brand new gold badge which was presented to him Sunday evening at Haddon Hall in honor of his election to the position of "Life Secretary" at the recent convention of the Air Brake Association in Montreal. The badge was presented by Otto Best, a boyhood friend of Mr. Nellis. Other old associates who assisted were M. S. Belk, Southern; T. L. Burton, N. Y. C.; Robert Burgess, W. A. B. Co.; H. L. Sandhass, C. R. R. of N. J.; Mark Purcell, N. P.; and Harry Flynn, D. & H.

When Frank J. Lanahan on Saturday, as chairman of the nominating committee of the R. S. M. A., in reporting names for the presidency and vice-presidency of the Association prefaced his report with the statement that the committee could in no better way evidence its appreciation of faithful work than by advancing the two men who were next in line, he expressed the same spirit which he carries out as president of the Fort Pitt Malleable Iron Co. It would require one who had worked for and with him many years to tell the stories of his interest in his employees as it should be told and more space than there is in the *Daily* to cover them.

L. W. Baldwin, president of the Missouri Pacific, was accompanied to the convention by Mrs. Baldwin and E. H. McReynolds, assistant to the president. He spent a good deal of time Sunday looking over the exhibit, and in his address yesterday spoke in the highest terms of its educational value. Mr. Baldwin was educated at Lehigh University as a civil engineer, and was alternately in the engineering and operating departments of the Illinois Central before he became vice-president and general manager of the Central of Georgia in 1915. He had never seen one of the exhibits at the mechanical conventions before, but he was for years a worker in the American Railway Engineering Association.

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Joseph Sinkler (right), the Incoming President, and Lewis B. Rhodes (left), the Retiring President, of the Air Brake Appliance Association, just in from Montreal